PIT AND QUARRY

JANUARY 1953

## *In this Issue . . .*

**Reviews and Forecasts of Aggregates, Cement, Miscellaneous Minerals and of Ready-Mix, Concrete Masonry and Pipe Industries • The Construction Picture N.C.S.A., N.S.G.A., and N.R.M.C.A. Convention Programs • New Dolese Plant**

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An Interchange on the Trenton Freeway, a Typical New Jersey Road Building Project

FOR DEPENDABLE HEAVY-DUTY SHIPPING SACKS...

# there is no substitute for kraft!

Kraft, manufactured from wood fibers, is the strongest paper known to industry. It was introduced in this country in 1909, just about the time when the first generation of Gilmans started manufacturing bags.

As pioneers, we have spanned the years with practical knowledge, technical skills, packaging experience . . . and our modern, completely integrated facilities are a notable example of kraft paper production and conversion.

Now in our first generation of specialization, we are expert in pulp and paper making, in bag manufacturing, in bag printing, in bag designing.

*Dependable as a Source . . .*
*Dependable as a Service*

MADE-TO-ORDER MULTIWALL SHIPPING SACKS
2 TO 6 PLY—PRINTED OR PLAIN

- Sewn Valve
- Sewn Open Mouth
- Pasted Valve
- Pasted Open Mouth
- Flat Sewn Valve
- Flat Sewn Open Mouth

**KRAFT BAG CORPORATION**

GILMAN PAPER COMPANY SUBSIDIARY
630 Fifth Avenue, New York 20, N. Y.
Daily News Bldg., Chicago 6, Ill.
Plants at Gilman, Vt. & St. Marys, Ga.

Gilman PAPER CO.
• St. Marys Kraft Corp.
• Gilman Paper Co.
• The Gilbound Corp.
• Kraft Bag Corp.

*If your product fits into a bag—we'll make the bag to fit your product*

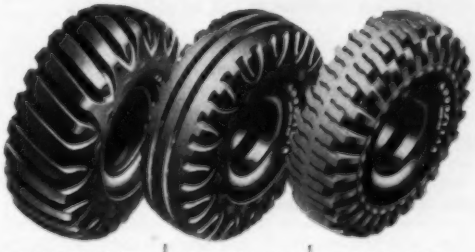
# Put it on the tough jobs-

## THE HARD ROCK LUG CAN TAKE IT!

FOR rough, tough, off-the-road hauls, you want tires that will keep your trucks moving on schedule with full pay loads—safely, surely, month after month. For such service the Goodyear Hard Rock Lug has no equal.

That's because the Hard Rock Lug is a product of Goodyear's unrivaled experience in building 575 million tires—far more tires for more different specialized uses than any other manufacturer. Look at its features and you'll see why it's the favorite of cost-wise operators. Goodyear, Truck Tire Department, Akron 16, Ohio.

"America Needs Better, Safer Roads—
Let's Bring Them Up To PAR."



**HARD ROCK LUG**

Super-tough champ in all types of tire-killing work. Sidewalls armored by massive rug bars, extra-thick undertread protects extra-thick body. Self-cleaning tread delivers top traction, forward or reverse.

**HARD ROCK RIB**

Companion tire for front wheels on all tire-killing service. Easier steering, smoother rolling. Same cord body, same shoulder and sidewall as HARD ROCK LUG.

**ROAD LUG**

High-stamina, dual-purpose tire, best for trucks that operate both ON and OFF the road. Tough construction and special tread design provide super traction off the road—long, smooth mileage on the road.

FOR EACH JOB, THERE'S A COST-CUTTING GOODYEAR TIRE!

Road Lug—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

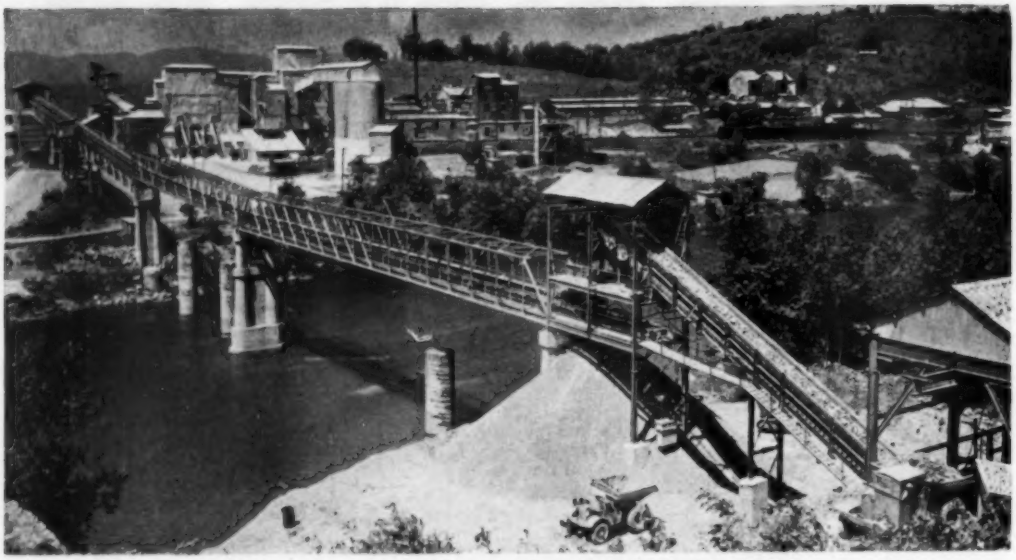
# GOODYEAR

**MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND**

*We think you'll like "THE GREATEST STORY EVER TOLD" — every Sunday — ABC Radio Network — THE GOODYEAR TELEVISION PLAYHOUSE — every other Sunday — NBC TV Network*



PIT AND QUARRY, January, 1953, Vol. 45, No. 7. Published monthly by the Complete Service Publishing Company, 431 South Dearborn St., Chicago 5, Ill. Subscription price $3 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $3 additional for each year. Single copy 50 cents. Entered as second-class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1879.



Limestone is carried across a river at a rate of 175 tons per hour on a Link-Belt 30-in. wide belt conveyor, fed by Link-Belt manganese apron feeder and steel apron conveyor on 30° incline, discharging to Link-Belt vibrating screen.

# Why LINK-BELT belt conveyors are first choice in so many industries . . .

### Engineering experience plus quality components combine to cut handling costs

EFFICIENCY in moving materials makes the difference between profit and loss in many operations. That's why it's so important to make sure you get the *right* belt conveyor system for your needs.

And there's no surer way of meeting your specific operating requirements than by calling in Link-Belt. Our belt conveyor specialists can efficiently engineer the system and recommend the correct components from Link-Belt's complete line of idlers, trippers and terminal machinery. And Link-Belt can match your needs in associated equipment—other types of conveyors, feeders, elevators, car dumpers and shakers.

Equally important, with such a tremendous background in belt conveyor application, Link-Belt is in an ideal position to follow through on every detail of your job—from planning through erection, if desired. One source—one responsibility.

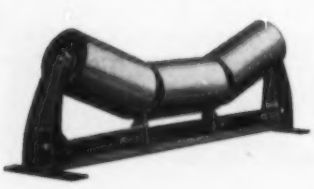
Link-Belt will gladly work with your engineers or consultants. There's a Link-Belt office in the principal city near you.

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, Duluth 2, San Francisco 24, Los Angeles 33 Seattle 4, Toronto 8, Springs (South Africa), Sydney (Australia). Offices in Principal Cities. 12,720-C

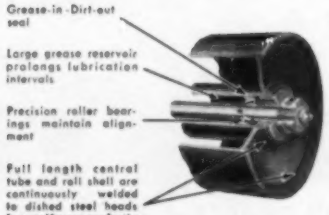
**LINK-BELT**

**BELT CONVEYOR EQUIPMENT**

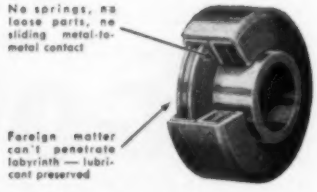
### LINK-BELT Roller Bearing Idlers provide free-rolling, long life



Standard for Industry—L-B "100" Idler


Grease-in-Dirt-out seal
Large grease reservoir prolongs lubrication intervals
Precision roller bearings maintain alignment
Full length central tube and roll shell are continuously welded to dished steel heads for uniform, perfectly balanced strength

Less lubrication and adjustment


No springs, no loose parts, no sliding metal-to-metal contact
Foreign matter can't penetrate labyrinth — lubricant preserved

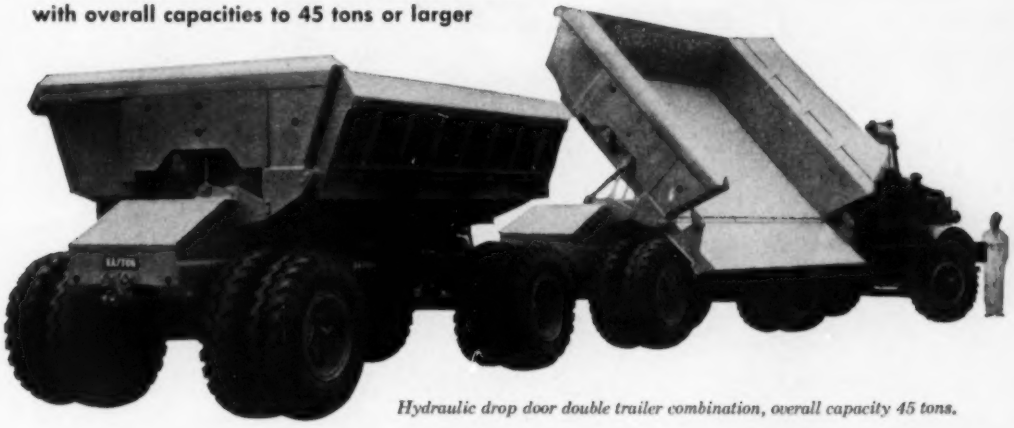
Grease-in-Dirt-out Seal

**Standard units used separately or in combination**

# Here's New Flexibility

## to meet varying haulage requirements

**Double-trailer or truck-and-trailer combinations with overall capacities to 45 tons or larger**



*Hydraulic drop door double trailer combination, overall capacity 45 tons.*

**BIG EASTON COMBINATIONS** are designed to provide flexibility where haulage requirements are subject to change. Changes in required tonnage, changes in haulage distance, changes in the type of material handled, changes in grades and road conditions, changes from job to job . . . these and similar developments can often be met quickly and efficiently, simply by coupling or uncoupling the converter dolly and rear trailer. The single or combination unit goes right to work with no time wasted. Also, for the big payloads to 45 tons and over, there's no need to experiment with costly, untried equipment when EASTON combinations provide the rugged, rock-proved dependability of standard EASTON body and trailer design. These big combinations offer a choice of several types and capacities for service with all makes of heavy duty off-highway trucks and tractors. Ask your local off-highway truck salesman for complete information. or write directly to EASTON.

**EASTON CAR & CONSTRUCTION COMPANY • EASTON, PA.**

**EASTON**

B-1055

*Back-mounted pan-type truck and trailer combination, overall capacity 28 tons.*

# ALL THE *Drilling* ANGLES

**. . . handled better by this super-efficient unit. . .**

# SCHRAMM

## DELUXE *Pneumafeed*

## . . . "tops" for POWER · MOBILITY · ENDURANCE · ECONOMY

**SCHRAMM**
CONSTRUCTION TOOLS

- Rock Drills
- Wagon Drills
- Trench Diggers
- Clay Spades
- Vibrators
- Drill Rods
- Bits
- Air Guns and Air Hose
- Couplings

The above view shows the hard-hitting SCHRAMM Deluxe Pneumafeed drill booster really "going places" in a quarry operation.

The Deluxe Pneumafeed, mounted on the SCHRAMM Pneumatractor, is a self-powered, self-propelled wagon drill, with the ability to drill in a 180° arc at any angle, and at a distance six feet from center post. The Deluxe Pneumafeed is secured with a mounting post having a saddle and safety clamps.

This unit uses the SCHRAMM DR-45 Drifter. A line oiler is built in. Drilling pressure is adjustable, according to nature of deposit being worked.

SCHRAMM supplies machines that insure superior performance in all phases of quarry operation.

***Write for Bulletin STB-51***

**SCHRAMM inc.** THE COMPRESSOR PEOPLE
WEST CHESTER, PENNSYLVANIA

# IS YOUR PROBLEM ROCK?

**McDonough Brothers, Inc.**
**San Antonio, Texas**
**has the answer!**

HERE'S the kind of digging that tests equipment. Here's where the smooth dipper action, that comes with the Northwest Dual Independent Crowd, pays off. Here's where ease of operation, freedom from jockeying to spot the load, and easy crawler action combine for output. These are the advantages you get with the "Feather-Touch" Clutch Control, Uniform Pressure Swing Clutches and Northwest steering. These are the advantages that McDonough Brothers, Inc., found in their first Northwest — advantages that have increased with their new Northwest.

Here is a *real* Rock Shovel and if you have a *real* Rock Shovel you will never have to worry about output in any kind of digging. Why not plan to have a Northwest on your future contracts. Let us send you complete details — then talk it over with a Northwest Man.

**NORTHWEST ENGINEERING COMPANY**
135 South LaSalle Street, Chicago 3, Illinois

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**SHOVELS • CRANES • DRAGLINES • PULLSHOVELS**

*Convertible for any Mining Material Handling or Excavation Problem*

# Here's what you get in Philadelphia WORM GEAR REDUCERS

- Highest efficiency.
- Great load-carrying capacity.
- High Thermal efficiency.
- Compact Design.
- Oil-Tight Housing.
- Available in wide selection of horizontal and vertical shaft arrangements.
- Choice of Single or Double Worm—or combination of Worm and Helical Gears.
- Complete range of ratios from 3½:1 to 6300:1.
- Standard line parts.
- Constructed in accordance with American Gear Manufacturers Association standards.
- Prompt Delivery.

Write for our latest catalog WG51 which gives full details of Philadelphia Worm Gear Reducers.

## Philadelphia Gear Works, INC.

ERIE AVE. AND G ST., PHILADELPHIA 34, PA.

NEW YORK • PITTSBURGH • CHICAGO • HOUSTON • LYNCHBURG, VA.

*Industrial Gears and Speed Reducers*
*LimiTorque Valve Controls*

## The toughest three-letter word in business

"But . . ."

The word a man uses when he starts by nodding yes and ends by saying no.

"But . . ."

The word on a Multiwall buyer's tongue just after he's said, "Well, as long as we order by specification, I guess one brand's as good as another . . ."

Executives who purchase more than 85 per cent of all Multiwalls have a big BUT there.

They testify* that there are many other considerations. Among the most important, the reputation of the manufacturer. They judge him by his record of reliability, his effort to meet delivery dates, his willingness to give a full measure of service.

We welcome the challenge of the toughest three-letter word in business. We believe the attention big buyers of Multiwalls pay to the *extra* factors—dependability, for instance—has a lot to do with their giving Union a greater proportion of their Multiwall business.

More so every day . . .

**IT'S UNION FOR MULTIWALLS**

*August, 1951 research study.

UNION BAG & PAPER CORPORATION • NEW YORK: WOOLWORTH BUILDING • CHICAGO: DAILY NEWS BUILDING

Badly warped and heat checked flywheels and pressure plates are expensive to replace. But you can completely eliminate this loss with Velvetouch Matched Facing Sets! Because—

Velvetouch Sets give you *four* friction material surfaces instead of two. They're designed primarily for *extra* heavy duty use. You get greater clutch capacity, plus positive assurance against frequent replacements resulting from overloading and driver abuse. In addition, Velvetouch enables you to reclaim damaged flywheels and plates for additional savings!

Detailed literature available now! For further facts, see your jobber, call our nearest branch, or write us direct.

Velvetouch

**THE S. K. WELLMAN CO.**

**200 Egbert Rd • Bedford, Ohio**

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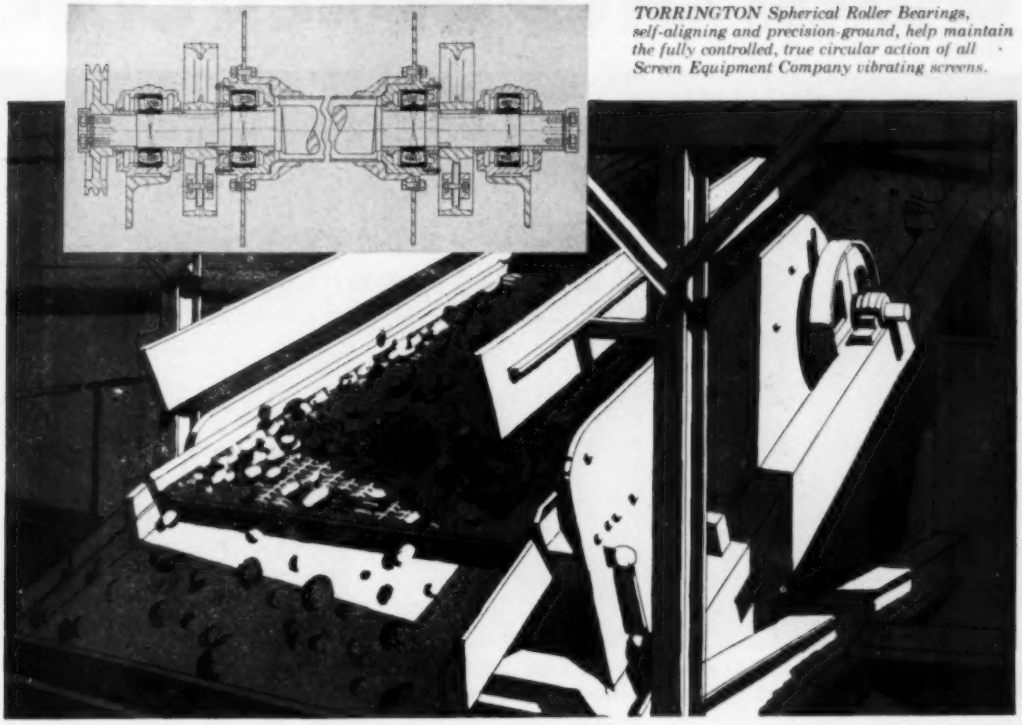
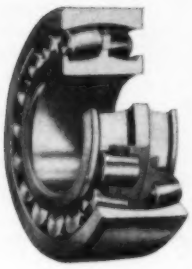
** EXPORT DEPARTMENT—8 South Michigan Ave., Chicago 3, Illinois

* SALES OFFICE AND WAREHOUSE  ** SALES OFFICE



*TORRINGTON Spherical Roller Bearings, self-aligning and precision-ground, help maintain the fully controlled, true circular action of all Screen Equipment Company vibrating screens.*

# Screening higher tonnages per day and per dollar!



Either way you look at it, per day or per dollar, TORRINGTON Spherical Roller Bearings help to increase tonnages from vibrating screens.

Self-aligning TORRINGTON Spherical Roller Bearings compensate for shaft deflection and frame distortion. They maintain sharp, accurate throw and a smooth flow of power under all operating conditions. Loads move along rapidly, carry-over is eliminated—and daily tonnages climb.

Precision-ground from the finest of bearing steels, TORRINGTON Spherical Roller Bearings resist the wear and tear of eccentric action. They cut maintenance to a minimum, lengthen service life, help you get, over the years, maximum total tonnage per equipment-dollar invested.

No wonder so many of the best vibrating screens—like the best crushers, pulverizers and other aggregate processing machinery—are equipped with TORRINGTON Spherical Roller Bearings.

Next time, specify TORRINGTON!

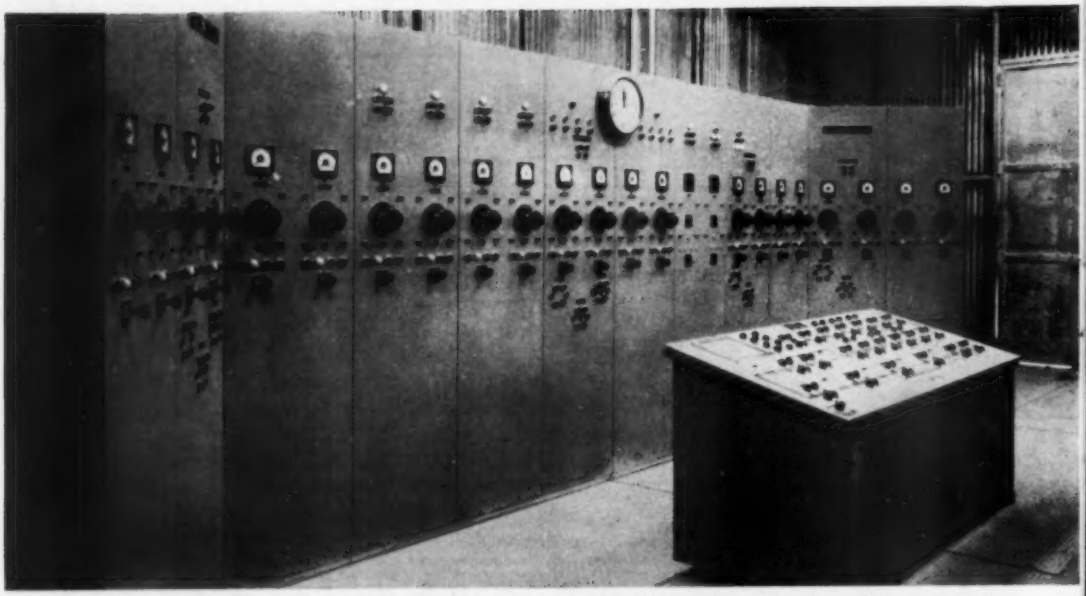
•

THE TORRINGTON COMPANY
South Bend 21, Ind. Torrington, Conn

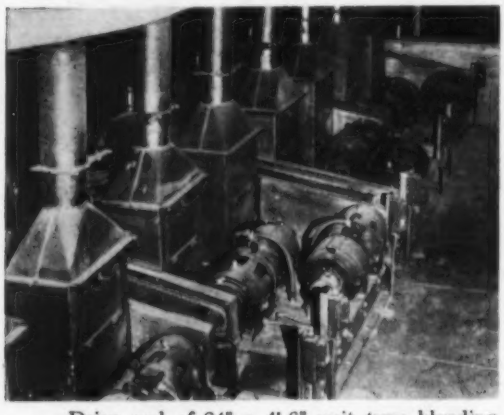
**TORRINGTON SPHERICAL ROLLER BEARINGS**

Spherical Roller • Tapered Roller • Straight Roller • Needle • Ball • Needle Rollers

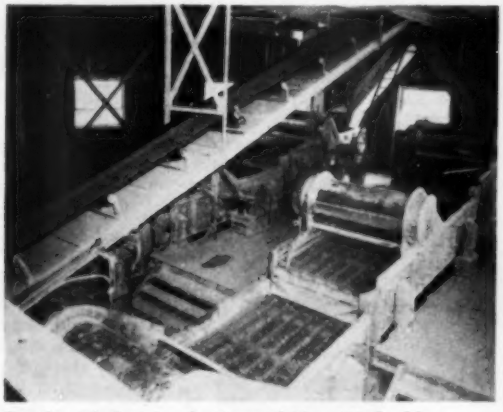
# Central Control...



Central Control Room operated by one man: desk type bench board controls flow of stone through screening and blending plant—vertical panel board controls all blending and loading operations.



Drive end of 24" x 4'-6" unit type blending belt feeders showing variable speed gear motor drives and dust collection.



South end showing battery of 5' x 14' double deck Robins Eliptex Screens producing all sizes under 1".

HEWITT-ROBINS INCORPORATED

**HEWITT-ROBINS**

DIVISIONS: HEWITT RUBBER • ROBINS CONVEYORS • ROBINS ENGINEERS • RESTFOAM®

# Accurate Blending

## *Featured In New Dolese Coordinated Stone Plant*

At Richards Spur, Okla., the new fully coordinated stone plant of Dolese Bros. Co. is accurately blending up to 750 tons of limestone per hour under the central control of only one man.

Here, all types of crushed limestone products, from derrick stone to agricultural limestone are produced and aggregates are automatically blended to meet an infinite variety of specifications. Its operation is so flexible that it can comply with any known specifications set by Federal, State, County or local agency, public or private. Its design is so flexible that it can meet almost any changing conditions to be encountered in the future.

The many problems encountered in the visualization and planning of this plant represented a challenge to engineering and manufacturing ingenuity and the challenge has been met through the combined efforts of the staffs of Dolese Bros. Co., and Hewitt-Robins, Inc.

General view of screening and blending station looking southwest showing main building, loading bins, main conveyor and recirculating conveyor to secondary crushing station.

**INCORPORATED**

**EXECUTIVE OFFICES: STAMFORD, CONNECTICUT**

**CHECK FOR INFORMATION ABOUT THESE JOB-TESTED PRODUCTS FOR YOUR OPERATION**

**CONVEYORS:**
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☐ **BUCKET ELEVATORS**

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- *☐ Steam
- *☐ Air
- *☐ Water
- *☐ Pinch-Valve
- *☐ Flexible Rubber Pipe

☐ **MECHANICAL FEEDERS**

☐ **STACKERS**

*☐ **GROOVED PULLEY LAGGING**

☐ **SELF-UNLOADING BOATS**

☐ **DESIGN AND CONSTRUCTION OF COMPLETE MATERIALS HANDLING SYSTEMS**

*For immediate information about these industrial rubber products, call your Hewitt Rubber Distributor. (See "Rubber Products" Classified Phone Book).

**Hewitt-Robins Incorporated**
**666 Glenbrook Road**
**Stamford, Connecticut**

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TITLE & COMPANY _____

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CITY _____ PO ZONE _____ STATE _____

# "QUICK-WAY"

Reg. U.S. Pat. Off.

## Speeds Output Increases Profits for PIT AND QUARRY OPERATORS

**Whether its moving shot rock, sand, or crushed stone, stripping overburden or charging bins, you'll find the "QUICK-WAY" in a class by itself in the ¼ to ½ yard field.**

The "QUICK-WAY" features low center of gravity, works easily over the side, has proper balance for truck operation, gives you easy, fast swinging, plenty of reserve power, rugged all steel construction, numerous parts interchangeable. 4 models, ¼ to ½ cubic yard shovel, clamshell, dragline, backhoe, 3 to 10 ton crane capacity. Truck speeds to and from jobs. Low initial cost. Low maintenance costs. Eight different attachments.

With a "QUICK-WAY" you'll roll up yardage records hour after hour, day after day. Ask your distributor for a free demonstration or mail coupon.

*"QUICK-WAY" Model E dragline with 30' boom loading gravel*

*"QUICK-WAY" truck shovel, loading sand*

*"QUICK-WAY" crane with skull cracker attachment eliminates secondary shooting*

*Clinker is handled from the pit to the storage pile and from the storage pile to grinding circuit with a mobile "QUICK-WAY" crane*

**"QUICK-WAY"**
**TRUCK SHOVEL CO.**
Denver, Colorado, U.S.A.

**MAIL COUPON TODAY**

**"QUICK-WAY" TRUCK SHOVEL CO.**
Dept. 108 • 2401 East 40th Ave. • Denver 1, Colorado

Please send me complete details on "QUICK-WAY" Truck Shovels —four different models from 3 to 10 ton crane capacity.

Name _____

Address _____

City _____ State _____

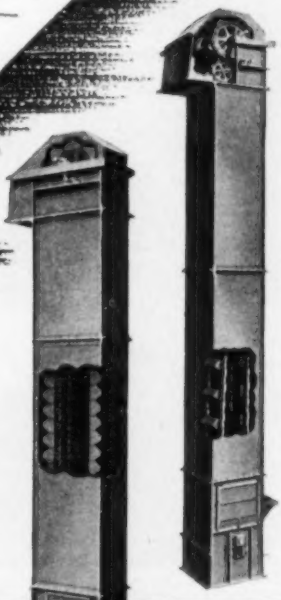
# on the "UP and UP"

Meaning you can DEPEND upon a Jeffrey Bucket Elevator if you have material to be lifted so that something else may be done with it. Step UP your production schedules . . bring costs down. In addition, you save time and expense in making layouts and drawings . . we have worked out a complete line of standards. A type and size to meet your requirements.

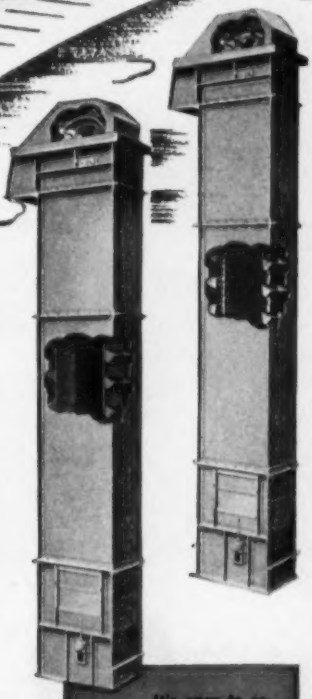
**Other Jeffrey Products:**

Bin Valves
Belt Idlers
Car Pullers
Chains
Conveyors
Coolers
Crushers
Dryers
Feeders
Pulverizers
Screens
Transmission Machinery
Weigh Feeders

Vertical or inclined, with or without casings and many features for economical operation. It is a step forward to select a Jeffrey Bucket Elevator.



Many features: welded angle casings, improved head and boot sections, removable hood, large inspection doors, increased bearing protection, and others.



It's easy to select a Jeffrey Bucket Elevator. Continuous or intermittently spaced buckets mounted on single or double strand chains or belts.

THE JEFFREY MANUFACTURING COMPANY
ESTABLISHED 1877
Material Handling, Processing and Mining Equipment

# bouncing rubber balls

## help speed production of agricultural limestone at Krueger Quarry

**On the** Ball Tray Deck of this 4' x 12' Double Deck SIMPLICITY Screen at the Krueger Quarry in Winchester, Illinois, bouncing rubber balls team up with SIMPLICITY's unique gyrating action to produce agricultural limestone at the rate of 60 tons per hour. Production goes along without interruption because the lively rubber balls, bouncing in compartments on the lower deck, prevent build-up of the soft limestone and keep it from blinding the 5/32" screen even when the material is damp.

**SIMPLICITY** Ball Tray Deck Screens like this one at the Krueger Quarry can do a better job of processing damp, sticky material for you. Other SIMPLICITY Screens with single, double or triple decks can help speed production and cut the costs of all your screening operations. For complete information, consult a SIMPLICITY sales engineer or write us today.

123

**Sales representatives in all parts of the U.S.A.**

**FOR CANADA:** Canadian Bridge Engineering Co., Ltd., Walkerville, Ontario

**FOR EXPORT:** Brown and Sites, 50 Church Street, New York 7, N. Y.

**Simplicity**
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## LOAD SAND, SNOW, ROCK OR SILT WITH EIMCOS

**The Eimco 104 is a heavy-duty machine for handling materials such as rock, sand, gravel or snow. Use it for digging basements, ditches or building roads. For loading trucks in tunnels, quarries or sand and gravel pits.**

**The Eimco moves forward to load and back to discharge. This straight line movement speeds up the job and reduces maintenance costs.**

**The Eimco is an ideal tool for heavy-duty loading jobs.**

EIMCO

**THE EIMCO CORPORATION**

*The World's Largest Manufacturers of Underground Rock Loading Machines*

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IN ITALY: EIMCO ITALIA S.P.A., MILAN, ITALY

# HERE'S HOW MACDOUGALD-WARREN LICKED ATLANTA'S GROWING PAINS AND KEPT CONCRETE COSTS DOWN

**They Solved Their Problem with an ERIE PORTABLE TRUCK MIXER PLANT and Gained an Important Advantage**

MACDOUGALD-WARREN'S . . . ERIE PORTABLE TRUCK MIXER PLANT GTES-79 WITH 600 BBL. GROUND SILO

Atlanta's development and growth program posed a problem for MacDougald-Warren, one of the South's ready-mix operators. Much of the construction is in the newer parts of town, away from MacDougald-Warren's central location. This meant long hauls . . . fewer trips . . . higher costs.

An Erie Portable Truck Mixer Plant licked this time-cost problem and gave MacDougald-Warren an important advantage to boot.

Said Mr. Edward Kelley, "Our Erie truck mixer is portable and also gives us central plant capacity. In one run it averaged 60 yards for nine hours straight. We'll use our Erie Portable here in Atlanta and on jobs throughout the south."

This installation is only one of hundreds where an Erie unit is helping to beat a time-cost problem. It can do as much for you. We invite you to consider and field test our equipment.

**More Facts About Erie's GTES-79 Portable Truck Mixing Plant**

One man can operate this unit at full capacity.

**It's pre-assembled into large sections which make set-up and take down fast and easy. Stows compactly for over-the-road transit too.**

**Phone or write for Booklet GS, Dept. Q**

**ERIE**

**STEEL CONSTRUCTION COMPANY**

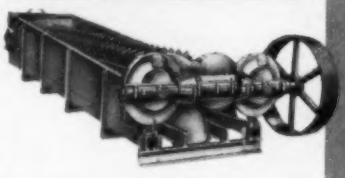
**3811 GEIST ROAD • ERIE, PENNSYLVANIA**

# McLANAHAN

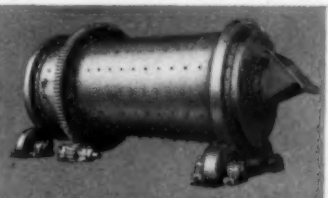
## for dependable-low cost FEEDING, CRUSHING, CLEANING in PITS, MINES and QUARRIES

All Steel Rockmaster Single Roll Crusher for primary or secondary work on shovel loaded rock and ore.

A pioneer in the development of many types of processing equipment, McLanahan has served domestic and foreign pits, mines and quarries for more than a century. Shown on this page are a few illustrations of McLanahan equipment for crushing, washing, sizing and conveying all types of ore, coal and rock. Technical details and price information will be sent upon request.

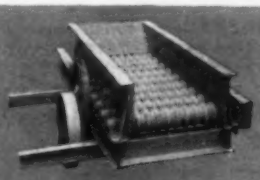


Log Washer for removing tough clay and soft rock from various materials.



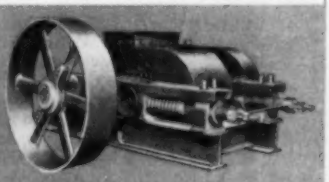
Steel Paddle Mill Scrubber—high capacity for cleaning large size feed.

Heavy Duty Reciprocating Plate Feeder. Handles any material from sand sizes to shovel loaded rock and ore.

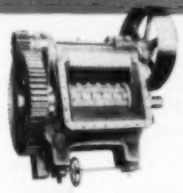


Live roll Grizzly for sizing and feeding various products.

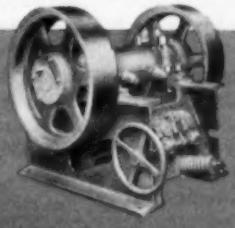
Double duty combination Scrubber and Sizing Screen for large and small capacities.



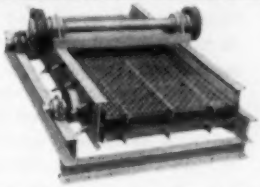
Heavy Duty Fabricated Block Diamond Double Roll Crusher for secondary reduction.



Automatic Steelstrut Crusher for primary and secondary work in small plants.



Fabricated Jaw Crusher for primary and secondary work.



Single and Double Deck Vibrating Screens in different sizes.

**McLANAHAN & STONE CORPORATION**

*Pit, Mine and Quarry Equipment Headquarters Since 1835*

Hollidaysburg, Pennsylvania

**DEPENDABLE PRODUCTS:**

Single and Double Roll—and Jaw Crushers, Crushing Plants, Reciprocating Plate and Apron Feeders, Roll Grizzlies, Conveyors, Elevators, Screens, Scrubbers, Steel Log Washers, Sand Drags, Hoists, Jigs, Dry Pans, Dryers, Scrap Bundlers, Pulleys, Gears, Bearings, Sprockets, Sheaves, Rollers, Bin Gates, Elevator Buckets, Gratings, Car Wheels, Ferrous and Bronze Castings.

**LOADING** — High reverse speeds, power steering and high lift make the Model HM flexible and fast for loading operations with output between 100 and 150 cu. yds. per hour.

**STRIPPING** — The ability of the Model HM to dig and load enables it to strip overburden and load it too when advisable. Precise bucket control also insures a close, clean stripping job.

**FEEDING** — In many pits it is more economical and practical to feed conveyors with "PAYLOADERS." The ability of the "PAYLOADER" to feed material selectively is often a valuable asset.

**PULLING & PUSHING** — The 90 horsepower engine and 4-wheel drive provides lots of drawbar horsepower for pushing, pulling and equipment-shifting work.

# MASTER OF MANY JOBS

The big Model HM "PAYLOADER" tractor-shovel is popular at pits, quarries, mines and plants because it is both capable *and* versatile . . . is able to do many jobs and move quickly from place to place at speeds of 17 m.p.h. Big tires, plus 4-wheel drive, gives it catlike traction over rock, dirt and sand. Power-boosted rear wheel steering makes it maneuverable and easy to handle . . . 4 gear ratios in each direction provide the right speeds to fit each task.

The powerful 1½ cu. yd. "PAYLOADER" is the flagship of the "PAYLOADER" fleet, which includes 7 sizes down to 12 cu. ft. bucket capacity. Also a choice of 4 wheel drive, rear wheel drive and front wheel drive to best fit your needs. Your Hough Distributor, one of 200 in the U.S. and Canada, is ready to serve you *right* — with extensive application experience and complete parts and service facilities. The Frank G. Hough Co., 750 Sunnyside Ave., Libertyville, Ill.

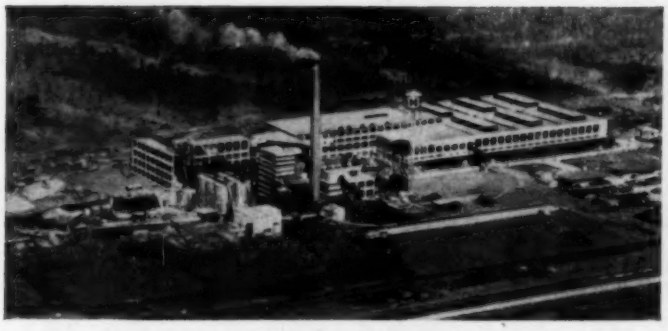
WRITE for full information on any of the "PAYLOADER" models: FourWheel Drive HM — 1½ yd. and HR — 1 yd.; Rear Wheel Drive Models HY — 1¼ yd., HF — ¾ yd., HE — ½ yd.; Front wheel drive Models HAH — 15 cu. ft., HA — 12 cu. ft.

SAY "HUFF"

**PAYLOADER®**

THE FRANK G. HOUGH CO. SINCE 1920

# HUDSON MULTIWALL SACKS ARE NOW THE INDUSTRY'S MOST FULLY GUARANTEED



This huge new ultra-modern Hudson mill at Palatka, Florida can make firm promises because it is independent of outside suppliers who may cause delays. Here, every step in the manufacture of Hudson Multiwall Sacks, from tree to the finished product, is under Hudson's exclusive ownership.

## INTEGRATED OPERATION BACKS UP HUDSON GUARANTEE

PALATKA, FLA. Hudson is the only Multiwall Sack manufacturer to guarantee its sacks against breakage on the filling or closing machines. The company has enough faith in its product to agree to replace without cost all Hudson Multiwall Sacks that fail on the purchaser's packing or closing machines.

Hudson's fully integrated operation provides the control of quality that such an unusual guarantee demands. Variations from outside suppliers are eliminated. To assure a dependable source of pulp Hudson owns and maintains 435,000 acres of choice timber. The strong, long-fibered Kraft is manufactured with laboratory controlled uniformity. The finished sacks (pasted, sewn, valve, or open mouth) are tailored to your most exacting specifications. And assured delivery is available by rail, truck, or water.

## HOW HUDSON'S NEW GUARANTEE WORKS

When Hudson Multiwall Sacks are delivered into your custody, the company's new guarantee goes into full force.

All Hudson Multiwall Sacks must successfully pass your packing machines or be replaced without cost.

All Hudson Multiwall Sacks must pass your closing operations without failure, or Hudson will replace them.

### Replaces Multiwall Sacks broken on your packer

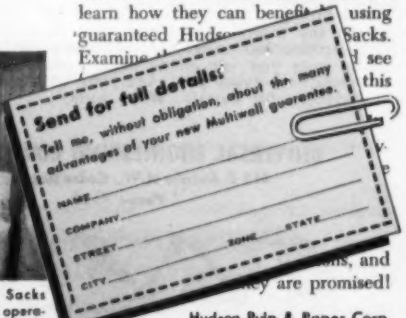
NEW YORK CITY. "Our new guarantee to replace without cost every sack broken in packing and closing on your machines," stated T. H. Mittendorf, Hudson's Vice-President in Charge of Sales, "makes our Multiwall Sacks the most fully guaranteed in the industry. This is a big advantage to buyers because now they can count on using every sack they purchase."

T. H. Mittendorf

Mr. Mittendorf further explained, "Until Hudson introduced this new replacement policy, every user had to pay for his own losses for normal breakage on the packing or closing machines. But Hudson's new guarantee has changed all that. Now, when you use Hudson Multiwall Sacks, your original cost for sacks is your final cost!"

### Urge Multiwall Sack users to write for facts

The Hudson Pulp & Paper Corp. invites all users of Multiwall Sacks to learn how they can benefit by using guaranteed Hudson Sacks. Examine ... see this ... and ... are promised!




Hudson Pulp & Paper Corp.
Dept. 103, 505 Park Ave., New York 22, N.Y.

# 60,000 TONS 24 DAYS 4 PITS

## RAY FISCHER'S NEW UNIVERSAL 880 GRAVELMASTER SENIOR "R"

Operating his Universal Senior "R" in four separate pits from Pipestone to Minneapolis, Ray Fischer of Fischer Construction Company produced 60,000 tons of ¾" specification in 24 days which included moving and set-up.

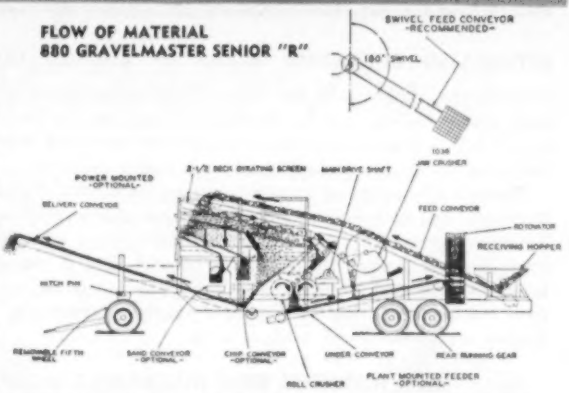
The Universal Senior "R's" BIG 10" x 36" jaw crusher, BIG 30"x22" roll crusher, and EXTRA LARGE 4'x12' 2½ deck screen made it possible for Ray Fischer to pour out this tonnage under a wide range of pit conditions. Percentage of crush varied from 15 to 43%. Frequently 6 tons a minute were pouring off the delivery conveyor. **That's production!**

The modern, streamlined design keeps weight within state highway limits . . . enables fast, easy moving from pit to pit . . . affords fast set-up. **That's portability!**

**It's easy to see why Ray Fischer placed a second Universal Senior "R" into operation the same season.**

Before you buy or specify, get the low-down on the many new Senior "R" features that combine top capacity with ready portability to help you win more bids . . . earn greater profits on every job. Ask your Universal distributor for details. Write today.

**FLOW OF MATERIAL**
**880 GRAVELMASTER SENIOR "R"**

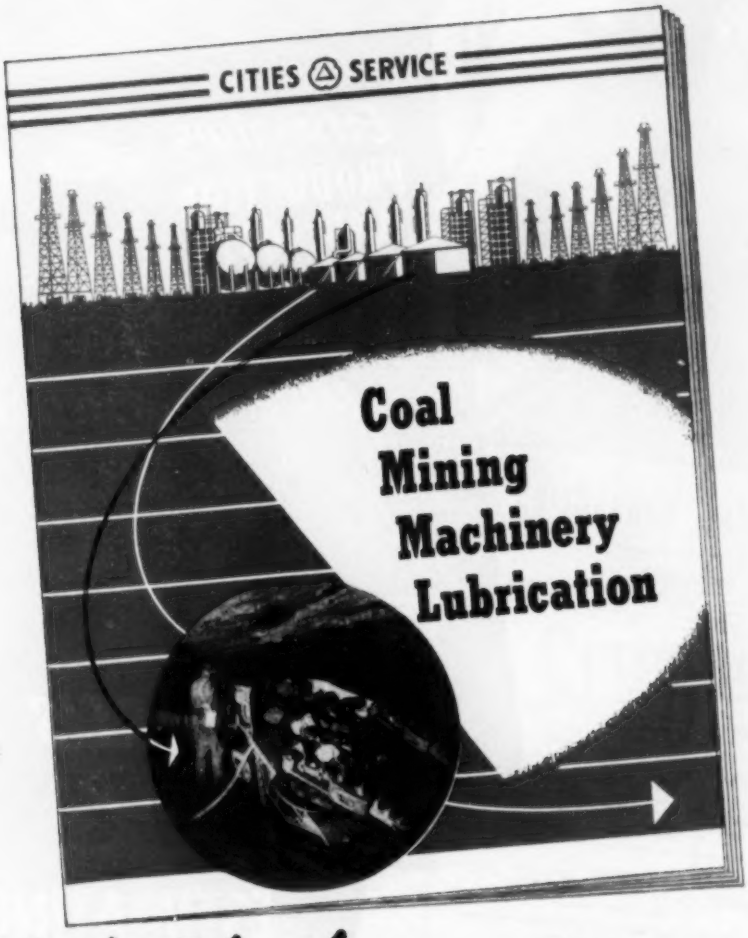



**UNIVERSAL GAVE CEDAR RAPIDS ITS ORIGINAL FAME FOR QUALITY CRUSHERS IN CEDAR RAPIDS SINCE 1906**

**UNIVERSAL ENGINEERING CORPORATION Division of PETTIBONE MULLIKEN CORPORATION**

619 C Avenue N.W., Cedar Rapids, Iowa
Phone 7105

4700 West Division St., Chicago 51, Illinois
Phone Spaulding 2-9300

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**TODAY, MORE THAN EVER BEFORE, THIS LUBRICATION BOOK CAN PROVE EXTREMELY USEFUL IN EVERY MINING OPERATION**

This new Cities Service Lubrication Book offers lubrication recommendations for every type of mining machinery . . . everything from drills, cutters and loaders to wire rope and ventilating fans.

It includes a complete lubrication chart for all mining machinery. Invaluable! . . . especially when training new personnel.

Head man or beginner in *any* mining operation . . . you'll want this book not only for vital, specific lubricating recommendations and procedures, but also for the general information contained on the make-up and function of the complete line of high quality Cities Service oils and greases. FOR YOUR FREE COPY, write Cities Service Oil Company, Dept. A21, Sixty Wall Tower, New York City 5.

CITIES SERVICE

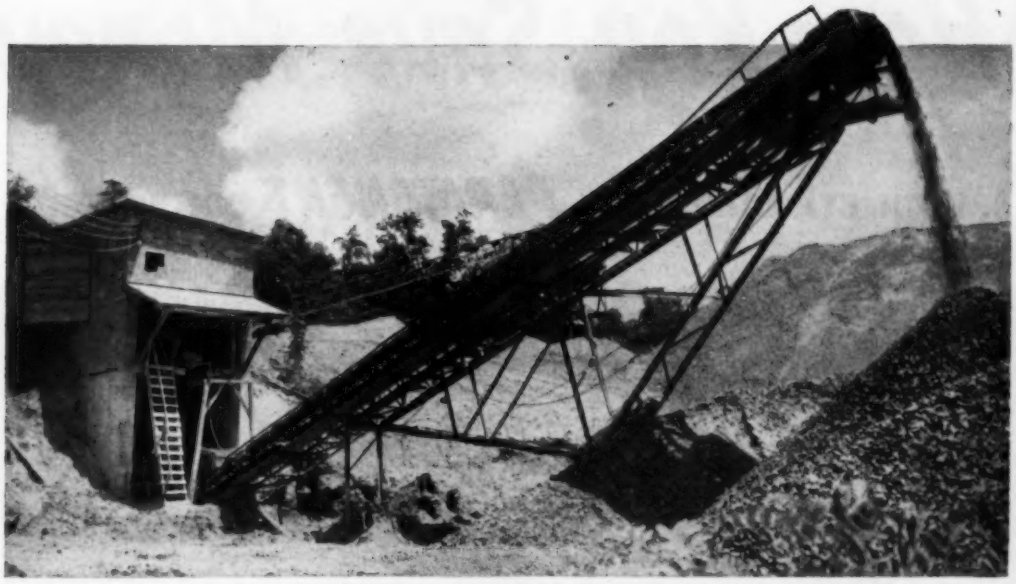
**QUALITY PETROLEUM PRODUCTS**

This enlarged and revised Euclid manual shows how to make a job analysis and provides a method of estimating production and costs for off-the-highway hauling equipment. It will enable you to determine the number and size of hauling units required for any job, and the estimated cost of moving material per cubic yard or ton.

You'll find the data contained in this book helpful and easy to use. If you haven't received a copy, contact your Euclid Distributor, or write us direct . . . on your letterhead, please. There is no charge or obligation, of course.

**The EUCLID ROAD MACHINERY Co., CLEVELAND 17, OHIO**

EUCLIDS *Move the Earth*



# 2,500,000 TONS Crushed--

"have yet to replace any essential or expensive parts"

## SAYS GEN. MGR. OF ROCKYDALE QUARRIES CORP., ROANOKE, VA.

7 sizes; get Bulletin 231

We have a 25x36 Telsmith Jaw Crusher which we installed in 1945. From that time to this we have put through that crusher almost two and a half million tons of dolomitic limestone and have yet to replace any essential or expensive parts. The cost has been an extreme minimum and..we are happy to recommend this crusher to anyone with similar problems.

ROCKYDALE QUARRIES CORPORATION

Gordon C. Willis

Gordon C. Willis, General Manager

C-9

# TELSMITH Jaw Crushers

**SMITH ENGINEERING WORKS, 504 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN**

Cable Address: Sengworks, Milwaukee

51 East 42nd St. New York 17, N. Y. • 211 W. Wacker Drive Chicago 6, Ill. • 713 Commercial Trust Bldg. Philadelphia 2, Pa. • 238 Main Street Cambridge 42, Mass. • Boehck Eqpt. Co. Milwaukee 3, Wis. • The McLean Co., 3525 Lakeside Ave. Cleveland 14, Ohio

Marcus Eqpt. Co., 432 Main St., Rochester, Mich. • Clyde Eqpt. Co., Portland 9, Ore., & Seattle 4, Wash. • Mines Eng. & Eqpt. Co., San Francisco 4, Calif.

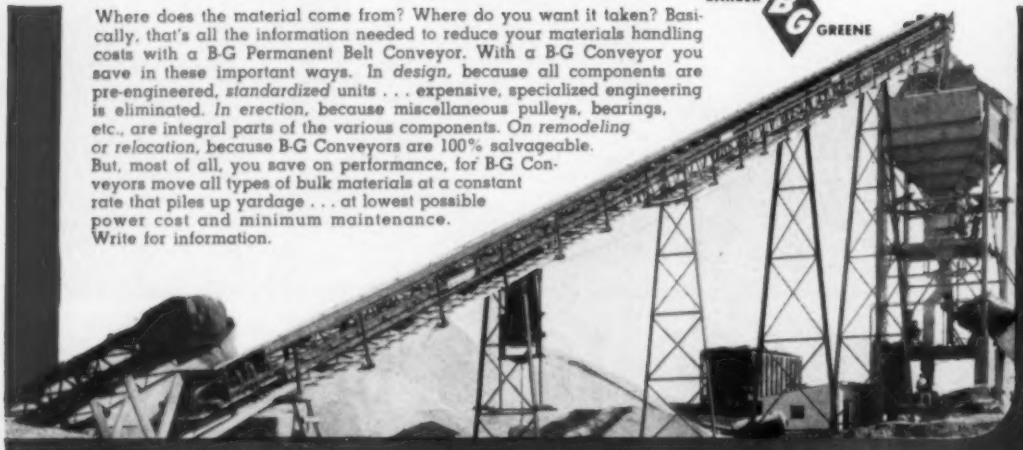
Bish Eqpt. Co., Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 10, Va. • Interstate Equipment Co., Statesville, N. C.

# How You Save Money

## . . WITH STANDARDIZED *PERMANENT* CONVEYORS

BARBER BG GREENE

Where does the material come from? Where do you want it taken? Basically, that's all the information needed to reduce your materials handling costs with a B-G Permanent Belt Conveyor. With a B-G Conveyor you save in these important ways. In *design*, because all components are pre-engineered, *standardized* units . . . expensive, specialized engineering is eliminated. *In erection*, because miscellaneous pulleys, bearings, etc., are integral parts of the various components. *On remodeling or relocation*, because B-G Conveyors are 100% salvageable. But, most of all, you save on performance, for B-G Conveyors move all types of bulk materials at a constant rate that piles up yardage . . . at lowest possible power cost and minimum maintenance. Write for information.



## . . . WITH HEAVY-DUTY *PORTABLE* CONVEYORS

When materials handling calls for a heavy-duty portable conveyor, B-G has the answer, too. Here is the heavy-duty, pneumatic-tired Model 374 available with belt widths of 18", 24" and 30", in lengths of 30' to 60'. The 374 will handle any bulk material—sand, stone, wet concrete, coal—at capacities from 150 to over 425 tons per hour . . . with a single operator. Every aggregate producer, contractor, city, county and state highway department will want full information on the B-G Model 374 Heavy-Duty Portable Belt Conveyor.

**B-G CONVEYORS . . . REDUCE COSTS, SPEED WORK AROUND THE WORLD**

see your **B-G distributor** . . . or write

# on Materials Handling!

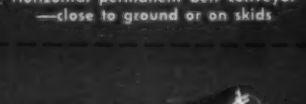
## ADAPTABILITY

Sketches below illustrate typical mountings which demonstrate the complete adaptability of B-G Permanent Belt Conveyors. Whatever your conveyor requirements, it will pay you to investigate the savings a B-G Conveyor System will bring.

Horizontal permanent belt conveyor —close to ground or on skids

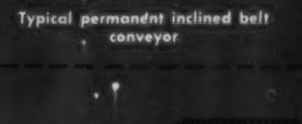
Elevated horizontal permanent belt conveyor

Typical permanent inclined belt conveyor



Permanent inclined belt conveyor with overhung discharge end

Permanent conveyor—horizontal to inclined combination

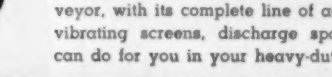


Permanent conveyor—inclined to horizontal combination

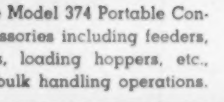
## VERSATILITY

Here are a few examples of what the Model 374 Portable Conveyor, with its complete line of accessories including feeders, vibrating screens, discharge spouts, loading hoppers, etc., can do for you in your heavy-duty bulk handling operations.

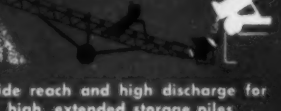
Wide reach and high discharge for high, extended storage piles.



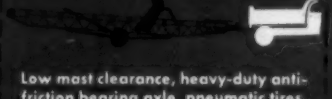
Low mast clearance, heavy-duty anti-friction bearing axle, pneumatic tires.



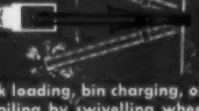
Truck loading, bin charging, or stock-piling by swivelling wheels.



Swivel wheels for loading to radial storage.



Equipped with hopper to elevate or convey wet concrete direct to forms.



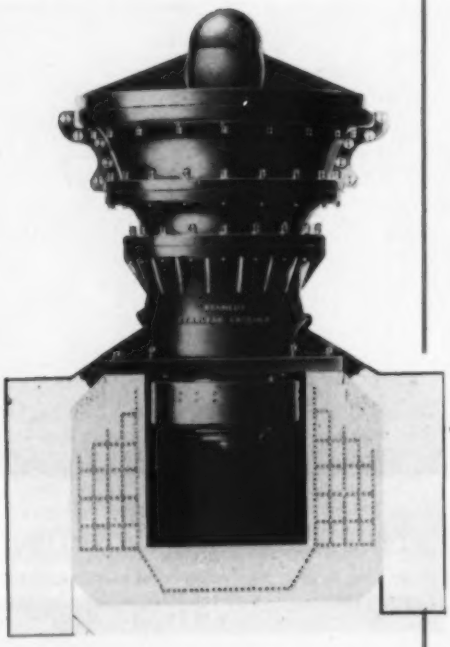
Equipped with hood to prevent loss of materials in dry batch transfer.

**Barber-Greene**

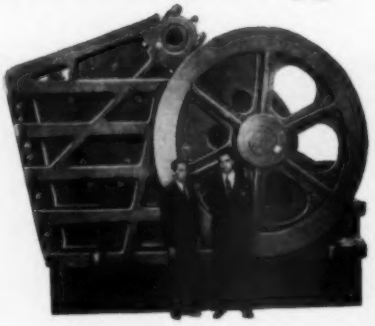
BG

*Aurora, Illinois, U. S. A.*

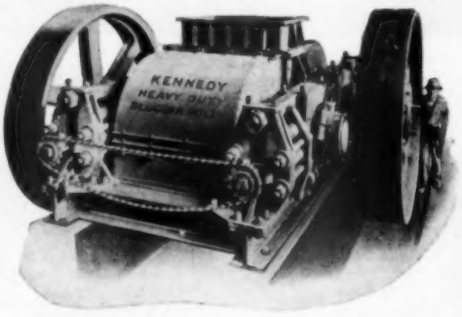
# KENNEDY PRODUCTS for their



**GYRATORY CRUSHER.** 70 degree double discharge outlets solve "sticky ore" problem. Synchronous motor built into pulley assembly. Power used only for crushing. Economical forced-feed oiling. Automatic power shut-off. Primary, secondary types.



**SWING JAW CRUSHER.** Heavy-Duty crusher of Open Hearth or Herculite Steel. Reversible swing jaws. Jaw shafts and jaws cast integral. Wide size ranges.

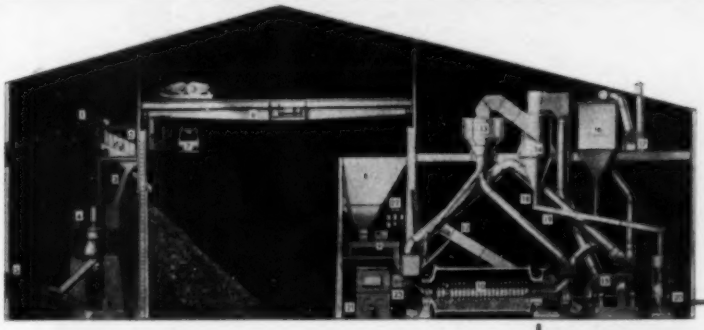



**SLUGGER ROLL.** Wreck-proof, special purpose roll-type slugger roll. Enormous capacity. Fly wheel drive. Variable reduction from 2" to 10" while in operation. Also available in single, special purpose rolls.

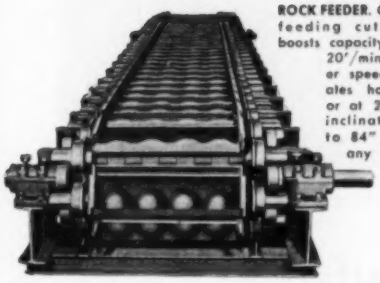
**ROTARY KILN.** Maximum production assured. Gear reduction operation; variable-speed drive. Water cooled riding rings on self-aligning bearings. Any length, diameter; single, multiple units.

**IT COSTS LESS.. TO OWN THE BEST!**

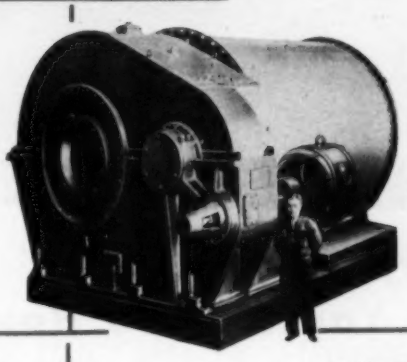
# ARE WORLD FAMOUS
## *mechanical excellence!*



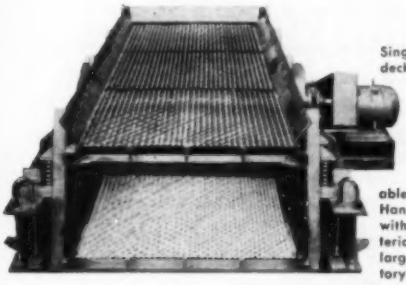
**AIR SWEPT TUBE MILL.** Dual classification doubles capacity. Produces 94% plus through 325 mesh when grinding clinker 2" and finer. Combination dryer, mill and separator. Dries and grinds simultaneously. Grinds material with 20% moisture content. Easily convertible from dry to wet process.



**ROCK FEEDER.** Controlled feeding cuts power, boosts capacity. Up to 20'/minute feeder speed. Operates horizontally or at 20 degree inclination. 24" to 84" widths, any length.



**TUBE MILL.** Drives KVS mills of any diameter, length. Shaft carried in self-aligning bearings. Gears, bearings automatically oil sprayed. Any size or capacity.

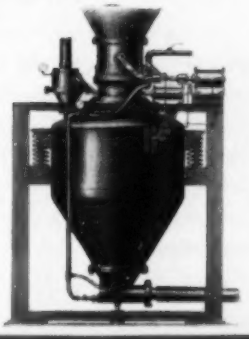


**VIBRATING SCREEN**

Single, double, triple decks. 4-way, variable-speed vibration. Handles rocks mixed with colloidal material. Scalps from large jaws or gyratory crusher.

**PNEUMATIC TRANSPORT SYSTEM**

Economical air handling of pulverized materials within plant; from ships, railroad cars. Completely pneumatic and automatic — no motors, feed screws, high-speed moving parts.



*SEND FOR BULLETINS DESCRIBING ALL TYPES OF KVS MACHINERY AND EQUIPMENT*

**KENNEDY-VAN SAUN**

**MANUFACTURING & ENGINEERING CORPORATION**

**TWO PARK AVENUE, NEW YORK**

***FACTORY* DANVILLE, PA.**

# MANITOWOC Model 1600

## Big Yardage Producer

## 1 Yard Shovel Loads 1700 Yards per 8 Hour Shift

It's the same story wherever you go — Manitowoc Shovels turning out big yardage, continuously, and profitably. Working for Pacific Sand and Gravel Co. of Centralia, Wash., this Manitowoc Model 1600, loads out 20 yard hauling wagons at the rate of approximately 4 minutes per load. That's production in any man's language.

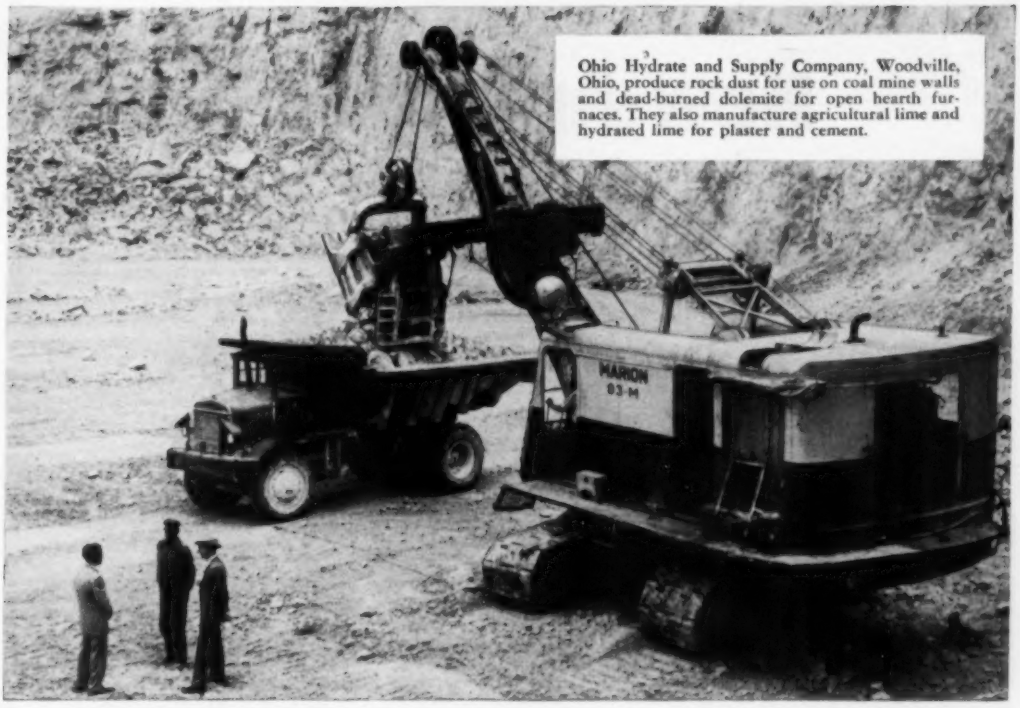
It's the kind of performance owners have come to expect from Manitowoc. Their fast operating cycles, plus simplicity of design and operation pay off on any job.

And take it from operator ERNEST E. ECKSTEIN who says, "In more than 20 years operating experience, this is the smoothest, fastest and most comfortable machine I have ever operated."

You'll do yourself a favor by investigating the bonus features Manitowoc gives you. Before you buy another shovel, crane or dragline, check with Manitowoc. Manitowoc Engineering Corp., Manitowoc, Wisconsin.

MANITOWOC Speed Crane

SHOVELS 1-5 YD. CRANES 18-100 TON




Ohio Hydrate and Supply Company, Woodville, Ohio, produce rock dust for use on coal mine walls and dead-burned dolemite for open hearth furnaces. They also manufacture agricultural lime and hydrated lime for plaster and cement.

# Gulf Quality Lubricants

## *keep equipment operating smoothly at Ohio Hydrate and Supply Company*

Close to No. 1 requirement for a smooth-running quarry is smooth-running equipment. That's why so many leading operators, like Ohio Hydrate and Supply Company, for example, use the lubricants identified by the familiar Orange Disc.

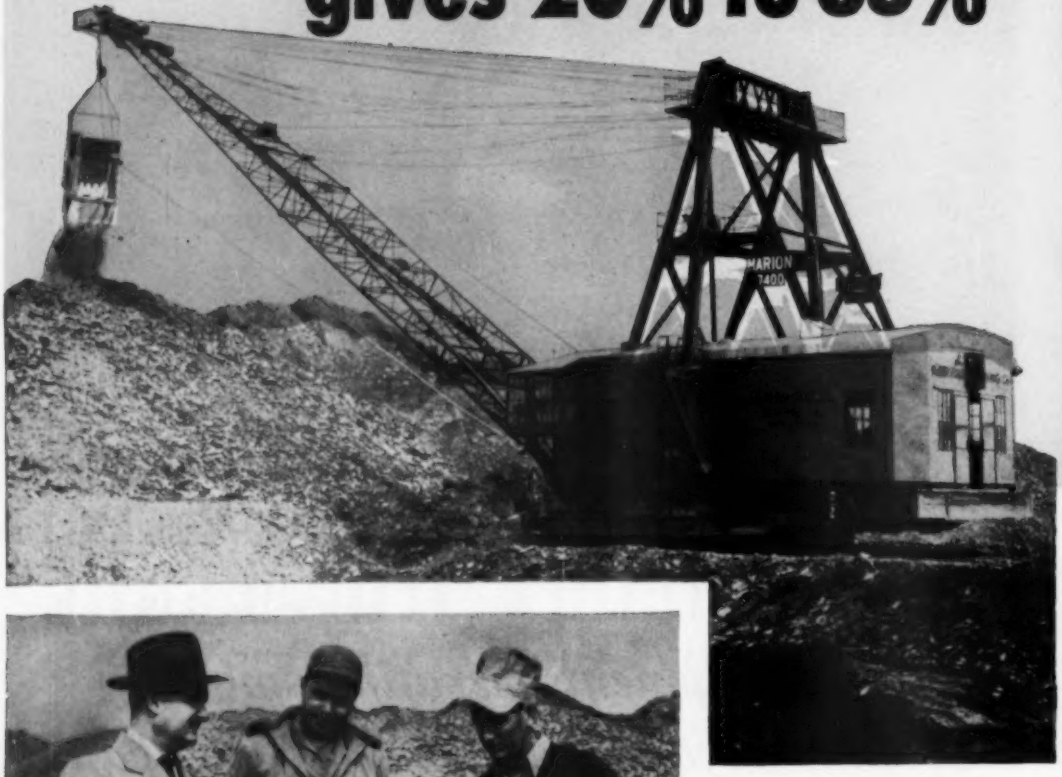
They have found that Gulf's oils and greases provide better protection for every gear and bearing, and help insure dependable equipment performance, lower maintenance costs.

Let us discuss with you how Gulf products and fine service can help your operation. They are available to you through more than 1400 warehouses in 31 states from Maine to New Mexico.

**GULF OIL CORPORATION • GULF REFINING COMPANY**
**PITTSBURGH 30, PENNSYLVANIA**

GULF SERVES INDUSTRY

# New American Tiger gives 20% to 83%

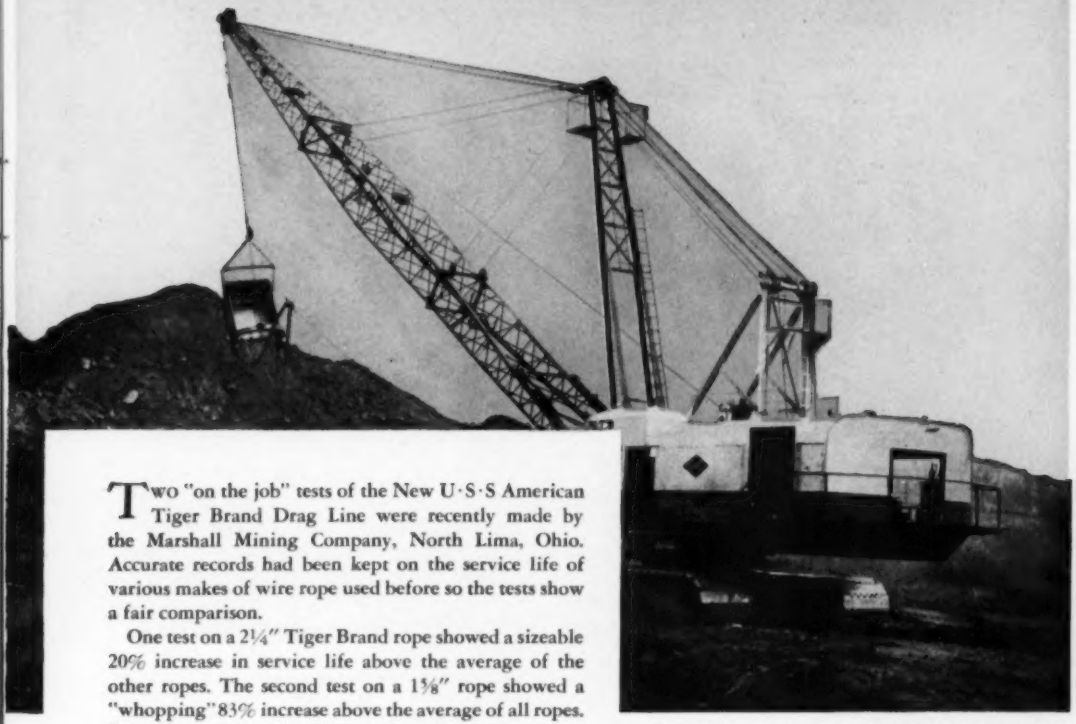



**20% INCREASE IN WIRE ROPE LIFE.** When this 14 cu. yd. drag line was equipped with the new Tiger Brand 2¼" Drag Line, the average service life of the rope was increased 20% over other brands tested.

**SAVES MONEY AND TIME—INCREASES PRODUCTION.** This new Tiger Brand Drag Line Rope quickly pays for itself through increased life and greater production. Try it next time you have to replace your drag rope.

USS
AMERICAN
TIGER BRAND
WIRE ROPE
UNITED STATES STEEL

# Brand Drag Line increase in service life



Two "on the job" tests of the New U·S·S American Tiger Brand Drag Line were recently made by the Marshall Mining Company, North Lima, Ohio. Accurate records had been kept on the service life of various makes of wire rope used before so the tests show a fair comparison.

One test on a 2¼" Tiger Brand rope showed a sizeable 20% increase in service life above the average of the other ropes. The second test on a 1⅜" rope showed a "whopping" 83% increase above the average of all ropes. Digging conditions in all cases were the same.

This new Tiger Brand Drag Line was designed especially to resist the severe operating conditions imposed by this class of service.

The use of this new rope on your drag line will mean substantial savings in your wire rope costs. It will cut your down time and help to keep machines at top capacity.

**DRAG LINE LIFE INCREASED FROM 600 HOURS TO 1100 HOURS**—83%. The best service on this drag line using 1⅜" rope averaged 600 hours for other brands of rope. But with the new U·S·S Tiger Brand Rope, service life jumped to 1100 hours—almost double the previous average.

## U·S·S AMERICAN TIGER BRAND WIRE ROPE

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL CORPORATION, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

*Excellay Preformed*

UNITED STATES STEEL

# *For TOUGH jobs with years of work ahead...*

*MARION 111-M Ward-Leonard Electric shovel owned by the Hydro-Electric Power Commission of Ontario, making a cut for an open canal and recovering aggregate for concrete work.*

## MARION 111-M
### Ward-Leonard Electric

Rock and ore have a way of making things rough for an ordinary shovel.

The machine may win, in the first few months, over the stubborn resistance of shot rock. But it still faces the test of time, for rock and ore "wear down" an ordinary shovel and break its spirit.

It's on the tough jobs, with years of work ahead, that the MARION 111-M Ward-Leonard Electric shovel has a chance to prove its real worth. Today this MARION is winning the battle of the rock pile and the ore pit on many a front.

Its victories mean greater production, lower operating cost, less maintenance expense and fewer work stoppages. Its powerful electric muscles and the shock-tested members of its frames and machinery assemblies are making owners say, "This is it!"

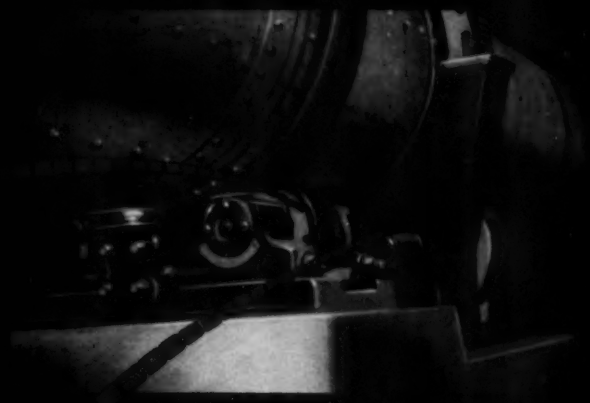
It doesn't cost anything to find out what the 111-M Ward-Leonard Electric can do for you. Your nearest MARION office will be glad to give you the facts.

**MARION POWER SHOVEL CO.**
**MARION, OHIO, U. S. A.**

from ¾ cu. yd. to 45 cu. yds.

OFFICES AND WAREHOUSES IN ALL PRINCIPAL CITIES

TSP Trunnion (unretouched photo). Note smooth surface of trunnion and ring.



## IDEAL CEMENT CO.
## Boettcher, Colo., reports:

# TSP* HARDENED TRUNNIONS AND PINIONS OUTLAST THEM ALL

TSP Kiln Drive Pinion.

### SERVICE RECORD

| TSP Hardened Trunnions | Competitive Cast Steel Trunnions |
|---|---|
| 14 years—still in service—good for many more years. | 3 years—badly worn—discarded. |
| **TSP Hardened Pinions** | **Competitive Cast Steel Pinions** |
| 14 years—still in service. Hardly any noticeable wear. | Less than 1 year—worn beyond use. |

Phenomenal service record? Not at all! Just a typical example of the long life with resultant dollar savings you can expect from TSP hardened parts in your Cement Mill. Write for Bulletin No. 452.

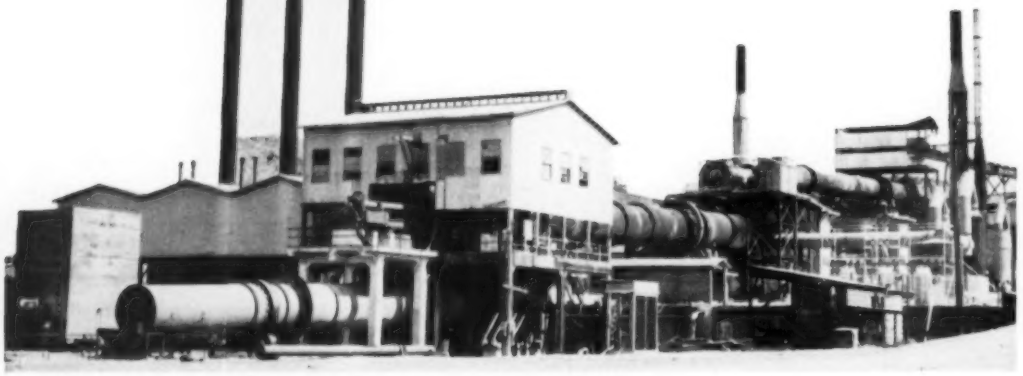
THE TOOL STEEL GEAR AND PINION CO.
CINCINNATI 16, OHIO, U.S.A.

*TOOL STEEL PROCESS PRODUCTS . . . the products that carry an absolutely positive GUARANTEE to give a longer life in the same service than any other product.

AD 49

THE STANDARD OF QUALITY SINCE 1909 FOR GEARS • PINIONS • ROLLS • WHEELS AND OTHER HARDENED PRODUCTS

**ROTARY KILNS-**
**COOLERS-**
**CALCINERS-**
**DRYERS-**
**ANYWHERE-**
**ANY SIZE!**



**IT PAYS TO STANDARD-IZE**

Here is another proof of STANDARD'S ability to design and fabricate rotary equipment for *any* job, large or small. Photograph shows a STANDARD kiln and cooler "in line" handling low grade manganese ore for the new *Lord process at Manganese, Inc., Henderson, Nevada. A 10 foot diameter STANDARD kiln (center) receives flotation concentrate of the manganeses dioxide ore and nodulizes it at 2000° F. The nodules then pass to a STANDARD cooler (lower left) where they are cooled to about 500° F.

STANDARD precision engineering based on more than 50 years experience stands ready to solve your problems, too — ANYWHERE in the world. Find out why in ROTARY EQUIPMENT "It pays to STANDARD-IZE". Write *today* for *Standard Bulletin* 524.

*Southwestern Engineering Company, Los Angeles, engineered this plant to incorporate a new concentrating process which is an exclusive development by Robert Lord, SWECO's Chief Metallurgist.

STANDARD 1902 50 YEARS 1952 STEEL CORPORATION

STANDARD

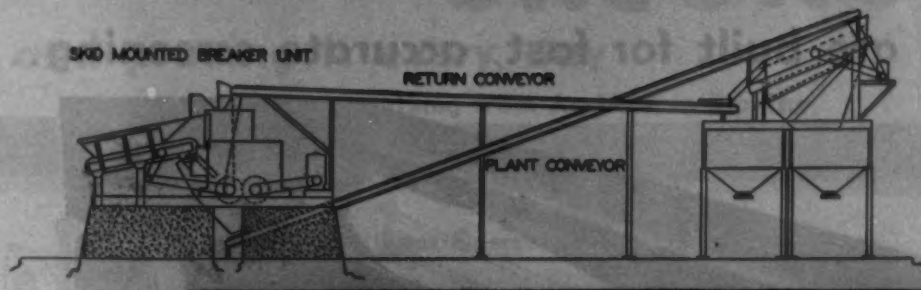
**STANDARD STEEL CORPORATION**

**5006 Boyle Ave., Los Angeles 58 · 419-6 Commonwealth Ave., Boston 15**

CONTROLLED IMPACT ACTION

# Get BIG PLANT TONNAGE

## at ROCK BOTTOM COST!




## with a PMCO IMPACT MASTER HEAVY DUTY IMPACT BREAKER

Patent Pending

Step into big profit operations with minimum plant investment! A PMCO Impact Master setup eliminates secondary crushers and auxiliary equipment . . . saves on power, labor and maintenance costs . . . gives you top speed production of top quality aggregate.

With the PMCO Impact Master's high ratio of reduction, the complete crushing job is done in one fast controlled breaking operation. The breaking is accomplished by rigidly mounted rotor hammers, producing a top quality, uniform gradation cubical aggregate. Finished product size is easily controlled, and simple mechanical adjustments change the percentage of sizes. You can use the PMCO Impact Master for producing road building and concrete aggregates, and adjust it for the simultaneous production of aglime when desired.

PMCO Impact Masters have capacities up to 500 tons per hour. Let us give you profit-making details on the size that meets your requirements. Write today.

*PMCO Impact Master Division, Universal Engineering Corporation, 625 C Avenue N. W., Cedar Rapids, Iowa*

**UNIVERSAL ENGINEERING CORPORATION division of PETTIBONE MULLIKEN CORP.**

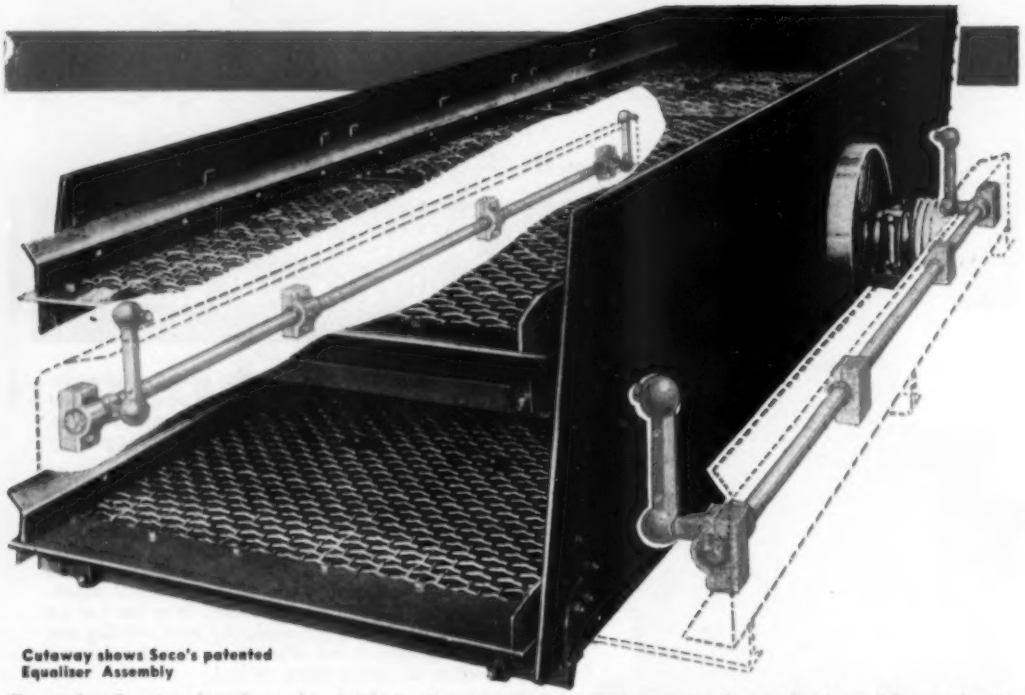
619 C Avenue N.W., Cedar Rapids, Iowa
Phone 7105

4700 W. Division St., Chicago 51, Illinois
Phone Spaulding 2-9300

# SECO

## VIBRATING SCREENS

## are built for fast, accurate screening...



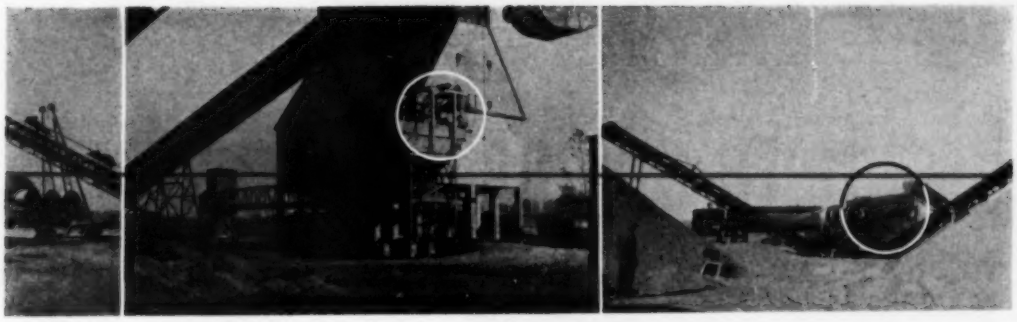
**Cutaway shows Seco's patented Equalizer Assembly**

From the drawing board to the finished vibrating screen, every step in the production of Seco vibrating screens is in the hands of skilled screening specialists working with finest, modern precision equipment in America's most modern plant devoted exclusively to the manufacture of vibrating screens. This is what's back of the superior on-the-job performance records reported by thousands of Seco Vibrating Screen owners throughout America.

This is why your individual screening requirements will receive interested personalized attention when you call in Seco. Not only will you get the *right* screen or screens for your job, but you'll be set for the long years of fast, accurate screening that's *engineered* and built into every Seco vibrating screen. Write or call Seco today!

***first in engineering...***

***first in performance***



# and proving it every day

## screening everything from Ag-Lime to Rip-Rap

### Precision Engineering Gives Operators Big PLUS in Performance

**ACCURATELY COMPUTING THE CENTER OF GRAVITY**

This is the key to smooth and efficient operation. Every part of the gyrating body is accurately computed as to weight and distance from center.

**MACHINING PARTS TO CLOSE TOLERENCES**

All machined parts undergo rigid and continuous checks for finish and accurate fit. Skilled machinests use special equipment and precision instruments to insure complete accuracy.

**BALANCE WHEELS COMPLETELY MACHINED FOR ACCURATE COUNTERBALANCE**

The counterweights on Seco balance wheels are placed in the exact center of the mass of weight, rather than the geometric center. This results in more accurate counterbalancing.

**ASSURING ACCURATE FIT OF BEARINGS IN HOUSINGS**

Here again Seco's extra care is evident. This equipment presses the bearings into the housings to eliminate the possibility of the outer race turning in the housing. This contributes to smooth performance and long bearing life.

**HOW THE DRAW PLATES ARE ACCURATELY FORMED**

This huge, heavy-duty power brake is used especially for forming the draw plates to pin-point accuracy in dimension. This insures proper fit of screen cloth to eliminate screen cloth breakage .

**SECO**

**TRUE CIRCULAR ACTION**

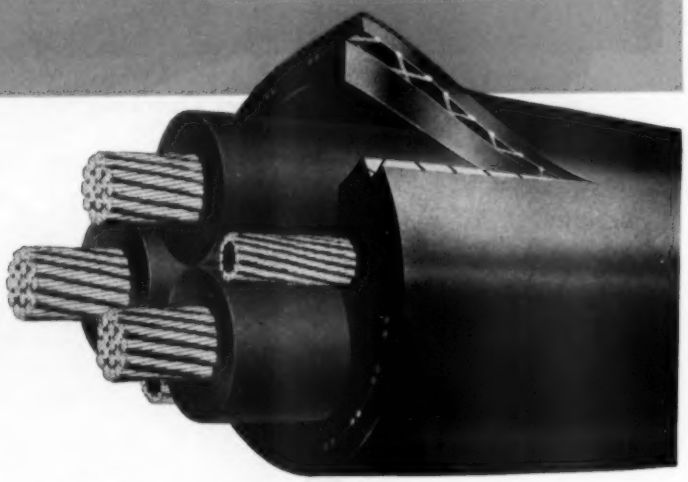
**VIBRATING SCREENS**

**SCREEN EQUIPMENT CO. INC.**

**1750 Walden Ave. Buffalo 25, N.Y.**

*In Canada: United Steel Corp. Toronto, Ontario*

# Here's your mine cable insulated with COLD RUBBER



## Another big improvement in Securityflex 600-V Mine Cable

*Cold rubber is firmer and tougher and less permeable. It gives this new and better Type G Securityflex** **much more moisture resistance**
**much more compression resistance**
**much more cut resistance**

That means longer cable life, fewer power interruptions, less maintenance trouble, *much more value for your money.*

Also – the famous Anaconda patented rubber-cored grounding wires are non-kinking and cushioned in a larger diameter that won't cut insulation.

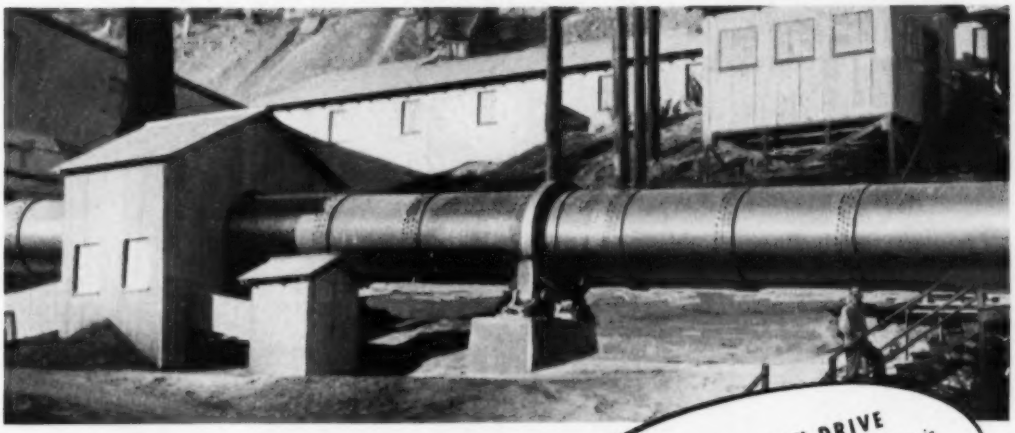
This means far more dependable and efficient grounding. When the cable twists in service the grounding wires are protected. Every wire in every strand is firmly supported and cushioned. There'll be fewer failures, fewer splices, less production loss, less expense.

Investigate this cable. See it. Call your nearest Anaconda Sales Office or Anaconda Distributor. Anaconda Wire & Cable Company, 25 Broadway, New York 4, New York.

*Trademark

## the right cable for the job ANACONDA® WIRE AND CABLE

# Traylor Rotary Kilns
## curb expanding maintenance costs

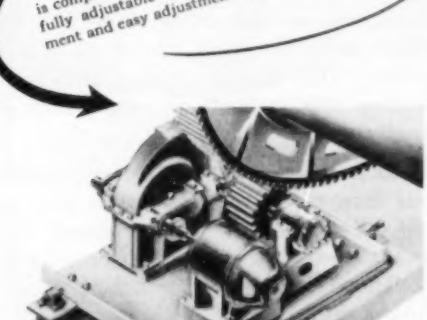


**ROTARY KILNS,** in the modern Cement Plant, must be able to absorb the punishment of continuous production. Otherwise, frequent repairs and resultant down-time quickly convert profit into loss.

*Traylor Rotary Kilns are designed for the modern Cement Plant. Solid cast steel floating riding rings are mounted on machined blocks. This insures a perfect fit as shell expands and contracts. Uneven wear which causes expensive maintenance is eliminated. In a Traylor Kiln, secondary air is utilized to obtain maximum heat efficiency from every B.T.U. This Traylor feature achieves amazing thermo - processing economies.*

It is careful attention to design and construction details such as these that have built Traylor's reputation for dependability. For complete information on all the superior features of Traylor Rotary Kilns, send for Bulletin 115 today.

**THE TRAYLOR KILN DRIVE**
is completely mounted on a sole plate. The plate is fully adjustable as a unit to insure perfect alignment and easy adjustment of main gear and pinion.



**TRAYLOR ENGINEERING & MANUFACTURING CO.**
536 MILL ST., ALLENTOWN, PA.
SALES OFFICES: New York, Chicago, San Francisco
Canadian Mfr.: Canadian Vickers, Ltd., Montreal, P. Q.

Send Bulletin 115 giving the advantages of Traylor Rotary Kilns.

Name: _____

Position: _____

Company: _____

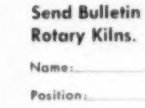
Address: _____ State: _____

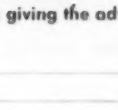
Traylor
LEADS TO GREATER PROFITS

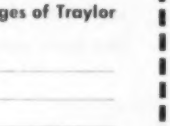
Primary Gyratory Crushers

Rotary Kilns

Secondary Gyratory Crushers


Ball Mills


Jaw Crushers


Apron Feeders

# DUST STOPPED HERE

## *Eliminates Dust Throughout Plant*

***BEFORE***—Dust conditions at the crusher, with Johnson-March System OFF.

***AFTER***—The same operation, at the same speed, with the Johnson-March System ON

This large southern limestone plant*, which produces 3000 tons of limestone a day, had been using a fan and cyclone dust collecting system without much success.

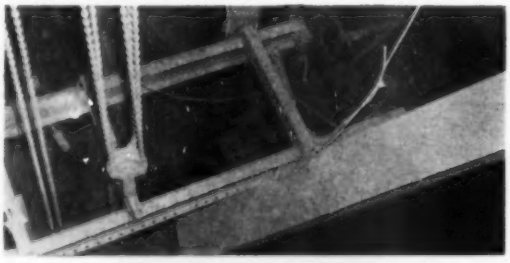
A Johnson-March Dust Control System was then tried—with control of dust at five different sources in the plant. The results were instantly apparent, as is evidenced by the unretouched photographs shown here.

**According to the plant superintendent,** ***"Installation of the Johnson-March System resulted in greatly reduced dust on the belts; the equipment doesn't wear as quickly; and operators have much better working conditions."***

Many similar J-M installations all over the United States are efficiently and economically eliminating dust at such dusty centers as primary crushers, secondary crushers, conveyors, screens, dumping and loading. Installation is fast, simple and inexpensive. Cost averages less than 1/10th that of other systems.

Our engineers will be glad to discuss your dust problems at no obligation. Write today for detailed information.

*Name of plant supplied upon request.



General view of area in plant with the J-M System stopping the dust. Without the J-M System, it was practically impossible to see the nearest objects.

# Johnson March

***Specialists in Dust Control***

**Dept. P.Q.-6, 1724 CHESTNUT STREET** **Philadelphia 3, Pa.**

# EXTRA Go-Power

WITH

## STERLING-WHITE Plan-A-Power

Up to 50% LONGER TIRE LIFE

**TO GET** the perfect "high-low" combination—high production at low operating cost—there's only one answer proved by experience under the most rugged conditions.

### *Go Sterling-White!*

Husky Plan-A-Power assures positive traction. Built for rugged, fast, heavy haulage duty, Sterling-White is built to really take it . . . day after day.

They're tailored to *your* heavy hauling needs. Get the facts from your nearest Sterling-White Representative.

**THE WHITE MOTOR COMPANY**

**STERLING DIVISION** • **Cleveland 1, Ohio**

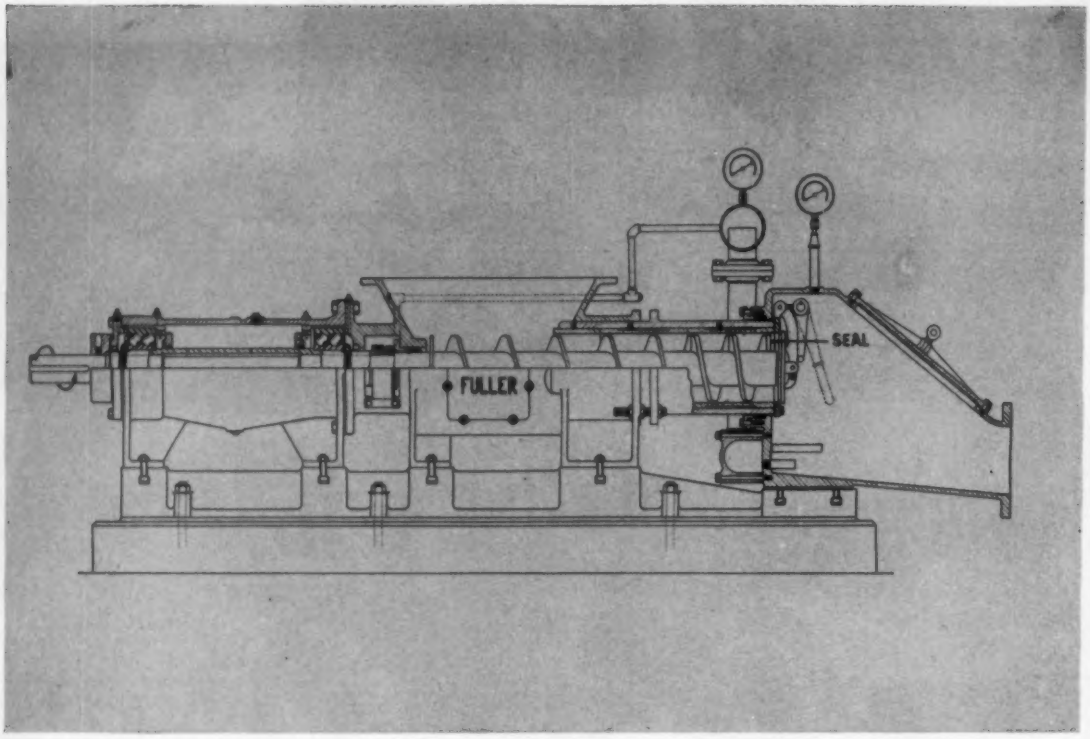
*The White Motor Company of Canada Limited—Montreal*

*Export Department—Cleveland 1, Ohio, U. S. A.*

Sterling White

### You'll *MOVE* with Sterling-White!

Wheel spinning and slippage reduced to a minimum because you really get the traction . . . get the action . . . with the big loads. Super-traction differential divides power to each rear wheel exactly as road and load conditions demand. Maximum strength for more go-power . . . for 50% longer tire life. Your Sterling-White Representative will show you why.




*let's take a look inside . . .*

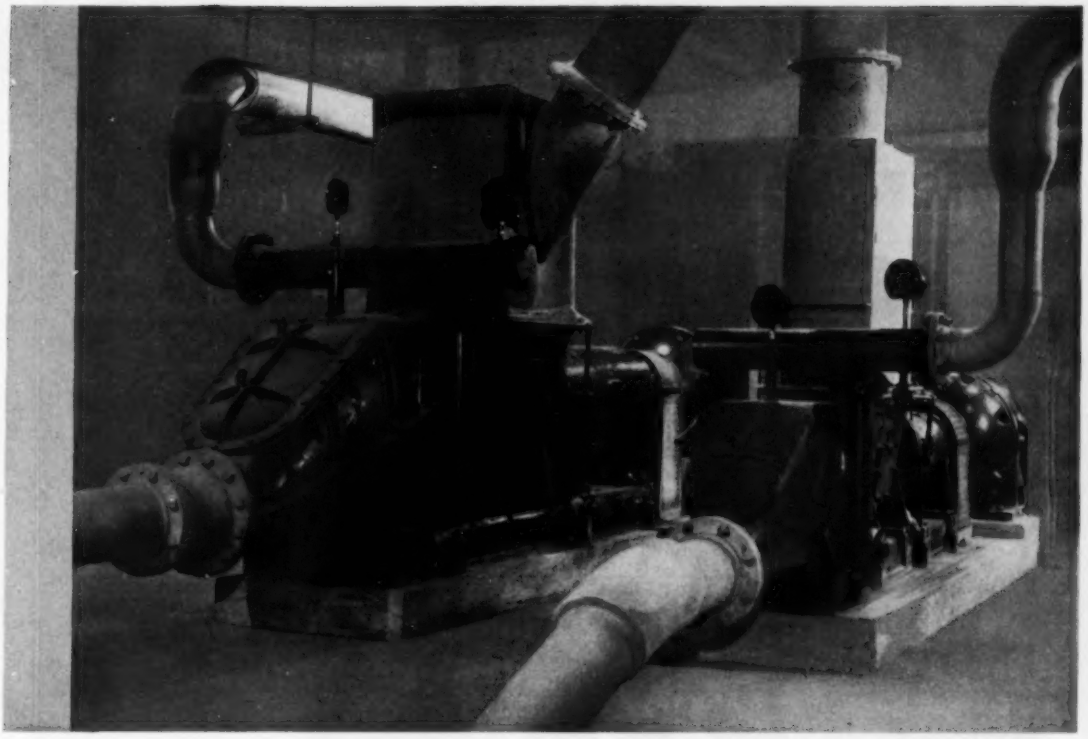
# FULLER-CONVEYING

Drawing is a part section of a Fuller-Kinyon Pump—and here is how it operates: Material to be conveyed enters the receiving hopper by gravity and is advanced through the barrel of the pump by the impeller screw. As the material advances (from left to right) through the barrel, it is compacted—to prevent blow-back—by the decreasing pitch of the impeller screw flights and a variable space provided between the last flight and a check valve. The material then enters the mixing chamber, through the check valve, where the material is fluidized by compressed air introduced through a series of air-jets, and in this fluid state enters the transport line where it is advanced as a dense column at a low velocity.

**Fuller**
CONVEYS BY
**AIR**
CLEAN
SAFE EFFICIENT

1951
P-148T

DRY MATERIAL CONVEYING SYSTEMS . . . CLINKER COOLERS . . . COMPRESSORS AND VACUUM PUMPS . . . FEEDERS AND ASSOCIATED EQUIPMENT



*see how this pump works*

# KINYON
## SYSTEM

Fuller-Kinyon Systems have proved their merit in hundreds of plants as the most efficient, speedy and dependable way of moving cement and other dry, pulverized materials from mills or separators to storage bins and silos—from storage to packer bins, cars, trucks, ships and barges—from cars to storage and process—for discharging self-unloading cement ships. Fuller-Kinyon Pumps are available in many sizes, both stationary and portable, for both manual and remote-control operation. Complete information on Fuller-Kinyon Pumps is yours for the asking. Write now for Bulletin FK-25A, Fuller Company, Catasauqua, Pennsylvania.

**Fuller**
CONVEYS BY
**AIR**
CLEAN
SAFE EFFICIENT

BRANCH OFFICES: CHICAGO • SAN FRANCISCO • LOS ANGELES • SEATTLE • BIRMINGHAM

# Dry Rolling Toggle

## with Rockin' Chair Motion

**A-1 Jaw Crushers**

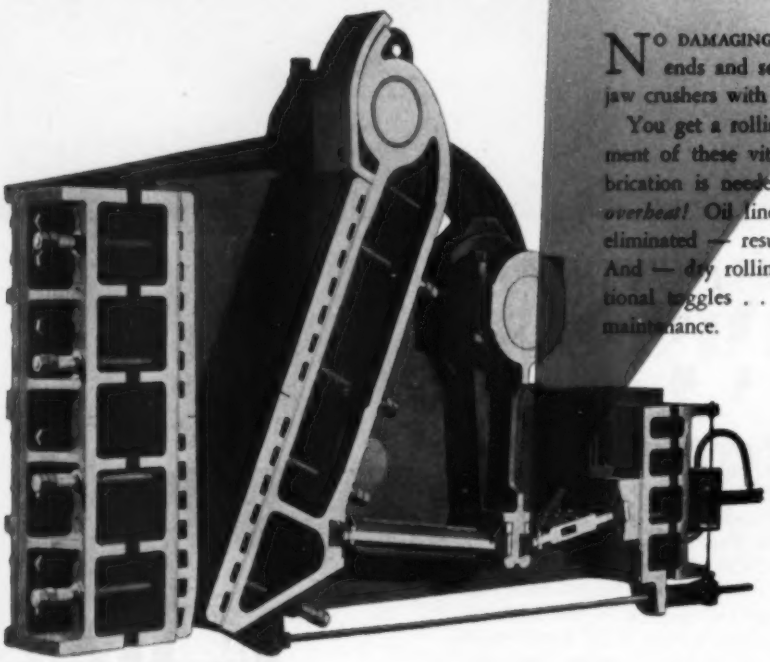
**Reduces Maintenance and Downtime**

**No Lubrication Needed**

NO DAMAGING sliding action of toggle ends and seats when you equip your jaw crushers with dry rolling toggles!

You get a rolling, "rocking chair" movement of these vital moving parts. No lubrication is needed, yet toggle ends *never overheat!* Oil lines and messy oil drip are eliminated — resulting in increased safety. And — dry rolling toggles outlast conventional toggles . . . operate with reduced maintenance.

A-3738



You can easily make your jaw crusher operations *more profitable* with dry rolling toggles. Call the A-C representative in your area, or write Allis-Chalmers, Milwaukee 1, Wis.

A-1 is an Allis-Chalmers trademark.

# ALLIS-CHALMERS

A-C ALLIS-CHALMERS

Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.

Hammermills

Vibrating Screens

Jaw Crushers

Gyratory Crushers

Grinding Mills

Kilns, Coolers, Dryers

H&L

*Teeth that really Dig*

the HEART of your equipment

H&L TOOTH COMPANY

(Pioneer Manufacturers of Two-Part Teeth)

1540 SO. GREENWOOD AVE. MONTEBELLO, CALIFORNIA

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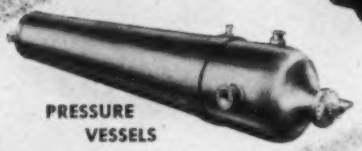
# HEADQUARTERS FOR HEAVY STEEL FORGINGS

STEEL ROLLS



PRESSURE VESSELS

PRESS CYLINDER

RINGS

Whatever your needs for heavy steel forgings in industry, Midvale can assure you of the finest in craftsmanship, precision and ultimate performance. Whether it is weldless gear rings for turbine speed reduction . . . cylinders for hydraulic presses . . . weldless high-pressure vessels for oil refining, gas reactions and steam generation or hardened and ground steel rolls for cold rolling carbon and alloy steel, stainless steel, aluminum, copper, brass, zinc, foil, paper, linoleum, plastics and rubber . . . Midvale engineers can help you design them. Midvale craftsmen, with the most modern equipment, will build them to your most exacting specifications. Put your heavy forging problems in our hands.

**THE MIDVALE COMPANY**

NICETOWN, PHILADELPHIA, PENNA.

OFFICES: NEW YORK • CHICAGO • PITTSBURGH
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# MIDVALE

*Custom Steel Makers to Industry*

PRODUCERS OF FORGINGS, ROLLS, RINGS, CORROSION AND HEAT RESISTING CASTINGS

**The JOY Champion sets absolutely new standards in blast-hole drilling. Months of operation in field after field have proved that it drills many times faster, and at far lower cost per foot, than any other drill on the market. Here's why . . .**

REVOLUTIONARY DESIGN: The Champion Drill continuously pressure-cuts the rock with a rotating, tri-cone roller bit. It operates quietly, no deafening hammer strokes.

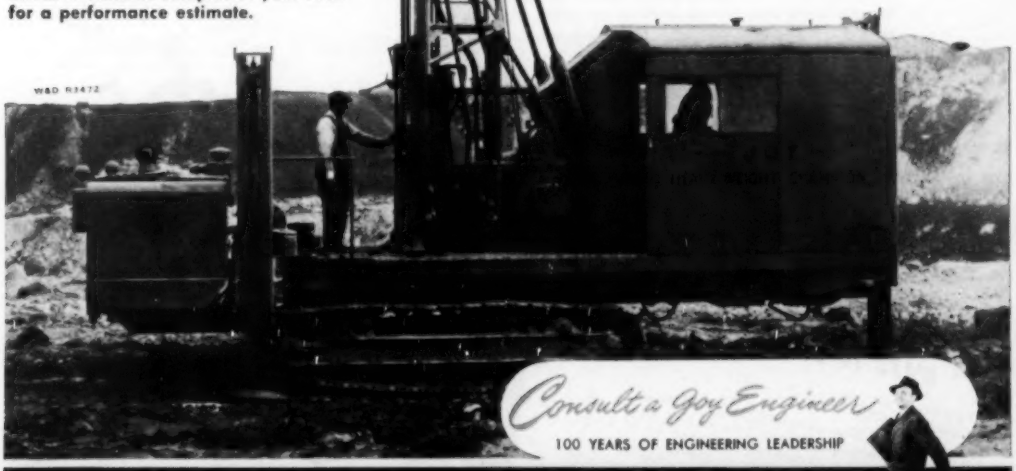
DRILLS DRY: No water-line or cold-weather freezing problems. Cuttings are instantaneously removed by an air-blast, and trapped and collected. The bit is always working on virgin rock, and even in dense, dolomitic limestone, bit life is exceptionally long.

NO LOST HOLES: Rigid drilling stem, plus controllable feed-pressure and rotation speed, prevent bit wander in bad ground—you finish every hole you start.

EASILY LOADED HOLES: The Joy Champion drills smooth-walled vertical holes, 5⅝" to 7⅞" dia., to any normal depth desired and as straight as a gun barrel. They load easier and safer, and give better blasting results.

**Built in two models—the Joy Heavyweight and Middleweight Champions—each with choice of diesel or electric drive. ● Send us samples of your rock for a performance estimate.**

# ONLY JOY builds the CHAMPION BLAST HOLE DRILL




*Consult a Joy Engineer*

100 YEARS OF ENGINEERING LEADERSHIP

## JOY MANUFACTURING COMPANY

GENERAL OFFICES: HENRY W. OLIVER BUILDING · PITTSBURGH 22, PA.

IN CANADA: JOY MANUFACTURING COMPANY (CANADA) LIMITED, GALT, ONTARIO

# HERE'S PROOF RIGHT IN YOUR OWN QUARRY

## THAT YOU CAN CUT COSTS 4 WAYS

**Yes, you can see DETONITE in action right at your quarry. Prove to yourself that DETONITE cuts your costs in these four important ways:**

### 1. BLASTING COST

KING DETONITE is a slow-detonating powder. Its slow, heaving, spreading action lifts and fully displaces the burden. High cost of secondary drilling and shooting is greatly reduced.

### 2. ROCK-HANDLING COST

KING DETONITE breaks up rock into sizes that permit shovels to dig efficiently at all times, thus reducing handling costs to a minimum.

### 3. EQUIPMENT MAINTENANCE COST

KING DETONITE's proper fragmentation means less wear and tear on expensive equipment . . . less cost for maintenance and replacement.

### 4. PROCESSING COST

KING DETONITE's proper fragmentation allows your crushers to operate at top capacity, thus lowering cost of processing the stone.

**4 WAYS TO CUT COSTS**

King Powder Co., Inc.
Cincinnati 1, Ohio

SHOW ME how DETONITE will cut my costs 4 ways. Without obligation, have the King Representative get in touch with me to arrange for a DETONITE demonstration right at our quarry.

Name_____
Title_____
Company_____
Address_____

*or phone us collect*

# KING DETONITE

PATENTED SURFACE-SENSITIZED EXPLOSIVE

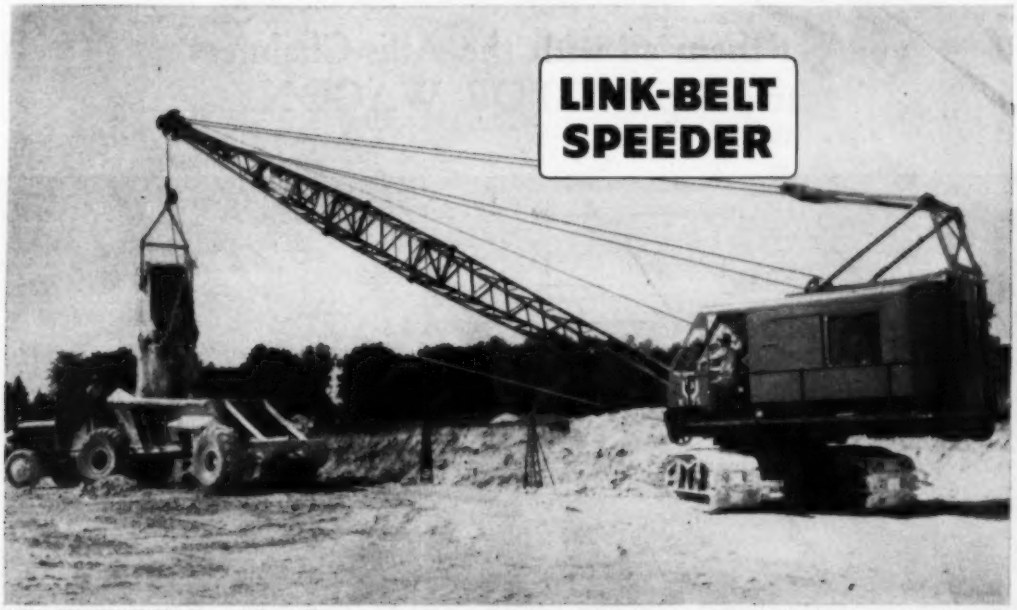
**THE KING POWDER CO., INC**

CINCINNATI 1, OHIO

**1878** *Seventy-Five Years Of Service* **1953**

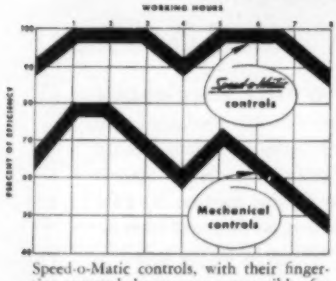
***Before you buy:***

# CHECK EARNING POWER!




**POLK CONSTRUCTION CO., Lakeland, Fla.,** reports they are "extremely pleased" with performance of this K-375, quarrying limerock.

## *Speed-o-Matic* controls pay off in greater output and lower maintenance




Speed-o-Matic controls, with their finger-tip operated levers, are responsible for the above startling evidence of how operator fatigue can be reduced.

Link-Belt Speeder's power-driven hydraulic controls reduce operator fatigue, minimize wear and tear on the machine and require far less maintenance than rigs with manual, air, vacuum or other control systems.

On tough rock jobs or ticklish steel erection—Speed-o-Matic control provides fast, safe, accurate, "feel the load" response—helps you do more work in less time at lower cost.

For details on the complete line of crawler, truck or wheel-mounted shovel-cranes . . . all their matchless output-boosting, cost-cutting advantages, ask your distributor or write for Catalog 2373.

**LINK-BELT SPEEDER CORPORATION**
**Cedar Rapids, Iowa**

13,058

**LINK-BELT SPEEDER**
**CORPORATION**
BUILDERS OF A COMPLETE LINE OF CRAWLER, TRUCK AND WHEEL-MOUNTED SHOVEL-CRANES

**FACTORY-TRAINED DISTRIBUTOR SALES AND SERVICE SPECIALISTS ...EVERYWHERE**

# modern, high-production demands call for

# strength, stability, speed

## you get them all with the Allis-Chalmers rear-dump MOTOR WAGON

**BUILT TO TAKE ROCK-SHOCK**
Double steel floor is reinforced with heavy oak plank to absorb loading shocks. Front and sides are channel ribbed to provide rigidity. Steering jacks and tires are protected from accidental damage by falling rock.

**DUMPS SAFELY . . . CLEANLY** — Wheel base remains constant during entire dumping cycle. With this stable wheel base, operator may back to the very edge of a steep fill, set the powerful air brakes on *all four* wheels and put the entire load over the edge.

Clean interior, plus high, 70-degree tilt assures complete load ejection. Body may be heated by exhaust to prevent freezing of materials in severe temperatures.

**TRAVELS FAST** — High horsepower-to-yardage ratio and large, high-traction rock-lug tires give fast average travel speeds — even on adverse grades and heavy going. Delivers more loads per hour; reduces idle shovel time.

**MULTIPLY TRACTOR USE WITH INTERCHANGEABLE SCRAPER BODY** . . . for stripping and other self-loading operations. TS-200 Motor Scraper is a high-speed, rubber-tired unit with 13-yard capacity, "through-the-center" boiling action for easy loading, positive forced ejection and many other high-production features.

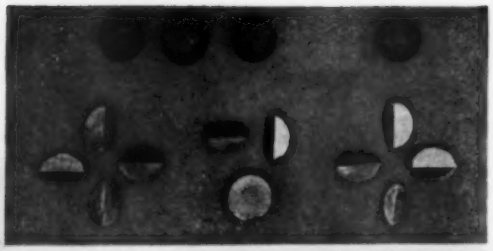
ALLIS-CHALMERS MODEL TR-200
REAR-DUMP MOTOR WAGON

Choice of Engines—165 hp. Cummins; 176 hp. Buda.
Capacity — 15 cu. yd., heaped; 18 tons.
Speeds — Five forward to 21.6 mph.; reverse to 2.5 mph.
Hydraulic steering and dumping.

*Ask your Allis-Chalmers dealer for the full story.*

ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

These Ni-Hard grinding balls, produced by PENNEBACKER COMPANY, Emmaus, Pa., are cast in sizes from ½" to 2". (Right) Ni-Hard balls sectioned to show soundness.



# *NI-HARD* BALLS SET NEW STANDARD IN GRINDING CEMENT

Ni-Hard®...a moderately priced nickel-chromium white cast iron, the most abrasion-resistant cast product commercially available, is constantly establishing new performance records in plants throughout the country. For example:

**IN GRINDING CEMENT CLINKER**

*Ni-Hard balls are lasting 3 to 5 times longer than hardened forged steel balls.*

**IN WET GRINDING CEMENT STONE**

*Ni-Hard balls last from 30 to 50% longer than hardened forged steel balls.*

Ni-Hard grinding balls are currently being used by leading cement companies throughout the country. Ni-Hard was adopted by these concerns after actual production tests lasting several years which conclusively proved Ni-Hard balls superior to hardened forged steel balls.

Ni-Hard balls definitely provide substantial economies in the cost of cement grinding operations.

***How much can Ni-Hard save for you?***

Abrasion is costing you money. We invite you to make use of our specialized experience in the solution of this problem gained in the field over the past twenty years. Our wide practical experience is yours for the asking... to help you determine *whether or not* Ni-Hard will give you the results you want. Send us details of your problem for our suggestions.

Two booklets, "Engineering Properties and Applications of Ni-Hard" and "Buyers' Guide for Ni-Hard Castings" are available upon request.

At the present time, nickel is available for the production of Ni-Hard and other alloys containing nickel, for end uses in defense and defense supporting industries. The remainder of the supply is available for some civilian applications and governmental stockpiling.

**THE INTERNATIONAL NICKEL COMPANY, INC.** 67 WALL STREET NEW YORK 5, N. Y.

# ...that's a GARDNER-DENVER 600!

Your compressor man soon learns the Gardner-Denver 600 requires no pampering — no tinkering.

He spots it off-level to save time.

He starts it — then walks away — knowing the Gardner-Denver 600 has the stamina for a full day's work any day.

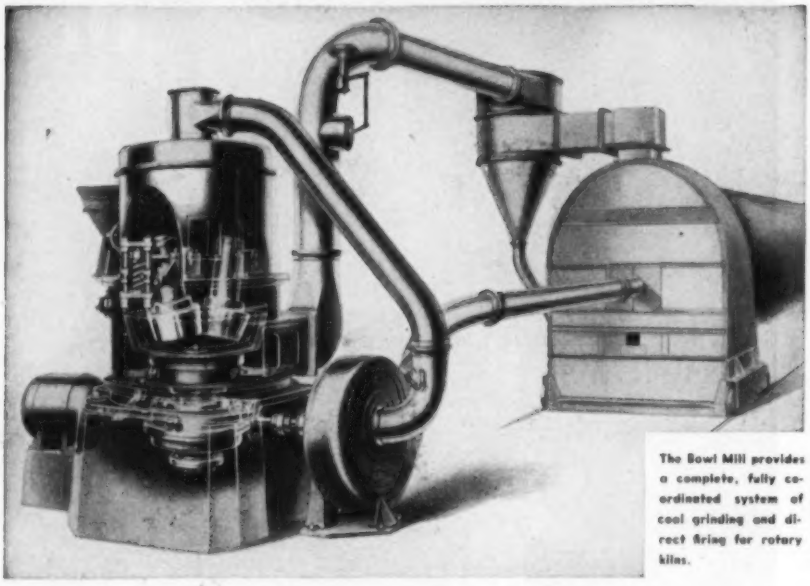
COMPARE VALUE BEFORE YOU BUY — AND YOU'LL CHOOSE THE GARDNER-DENVER 600. Send for bulletin PC-12 today!

## GARDNER-DENVER Since 1859

Gardner-Denver Company, Quincy, Illinois
In Canada: Gardner-Denver Company (Canada), Ltd.,
14 Curity Ave., Toronto 13, Ontario

THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS

# RAYMOND
# BOWL MILL



The Bowl Mill provides a complete, fully coordinated system of coal grinding and direct firing for rotary kilns.

**Raymond Bowl Mill Catalog No. 62**

**Write for Your Copy TODAY!**

Direct firing with the Bowl Mill helps to maintain maximum kiln efficiency, because this modern pulverizing unit provides complete firing control and uniform fineness of coal. This system is so flexible that it meets the many requirements of the modern plant:—

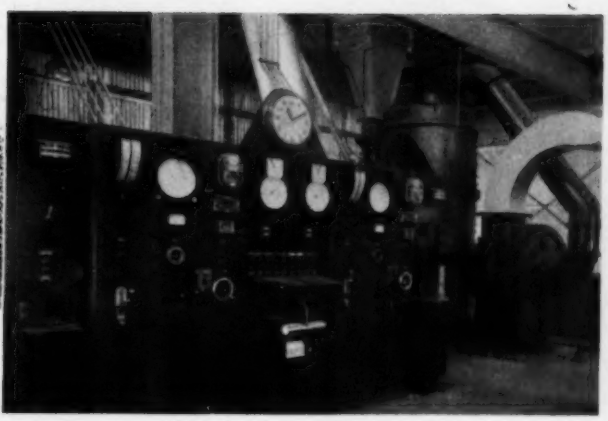
**Handles coal of any grade or moisture content**
**Easily adjusted or lubricated while operating**
**Sturdily built for continuous 24-hour operation**
**Adjustable for a wide range of capacity**

In hundreds of installations, the Raymond Bowl Mill shows important savings for all types of kilns . . . cement, lime, dolomite and magnesium, as well as for industrial furnaces.

## COMBUSTION ENGINEERING

**RAYMOND PULVERIZER DIVISION**
**1321 North Branch St. Chicago 22, Illinois**

# VISUAL CONTROL OPERATING PANEL



This Panel Board Control System gives a complete operating picture of the Bowl Mill at all times.

It indicates and records Temperatures, Feed Rates, Exhauster Pressure and Mill Suction, Amperage, Mill Air Flow, and also contains signals and motor controls.

Close regulation of the Bowl Mill and its quick response to changes insure uniform delivery of the coal-air mixture to the burning zone . . . the answer to low cost kiln operation.

## -SUPERHEATER, INC.

*Sales Offices in Principal Cities*

BOWL MILL

# ROCK RATED!

## for the hardest years ahead

Your profits depend on the strength and speed of loading equipment — and P&H gives you more of *both*.

P&H *greater strength* comes from welded alloy steels — the toughest construction known. No wonder P&H can take pounding and shock loads that K.O. less rugged machines.

P&H *greater speed* comes from Magnetorque* Electric Swing — actually 15% to 25% faster than any other machine of its size to give you greater production, lower tonnage costs. And it's goodbye to maintenance and replacement problems for years to come . . . Magnetorque lasts the life of your P&H.

But to get fully acquainted with this outstanding producer, let us direct you to a 955-A in action. If you want bigger capacity, same advanced design, ask about the P&H 1055-A (3½ yd.)

P&H **MAGNETORQUE**

**Electric Swing puts you beyond the "clutches of wear"**

*T.M. of Harnischfeger Corporation for electro-magnetic type coupling.

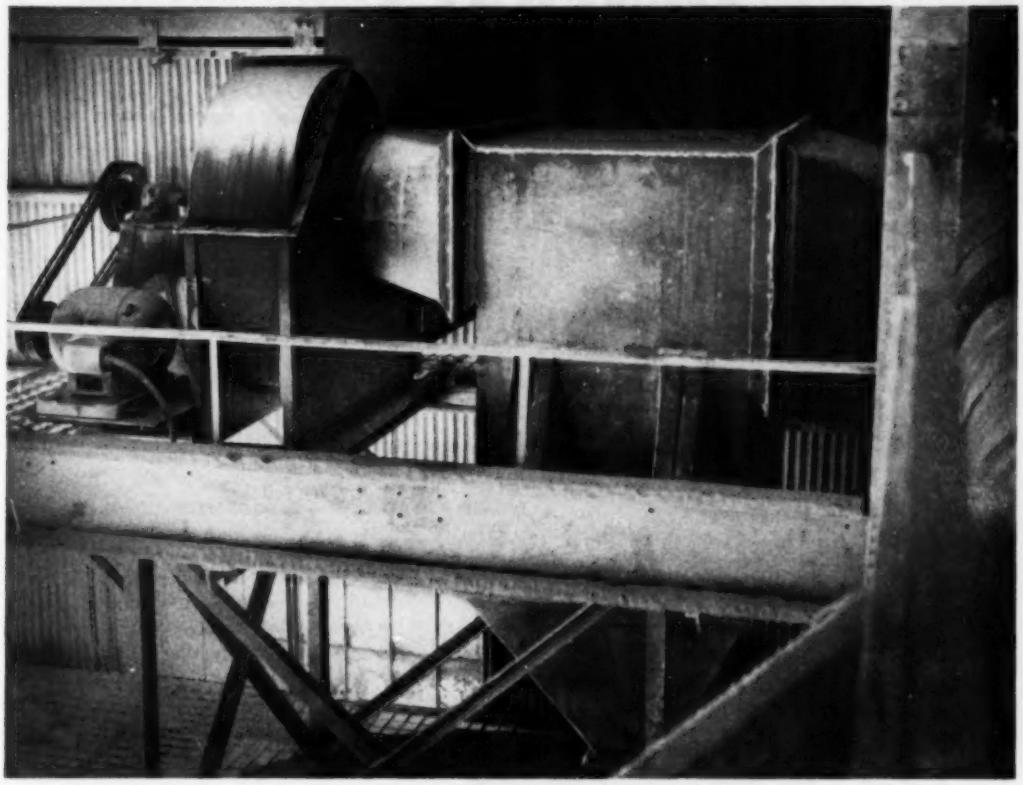
P&H **LARGE EXCAVATOR DIVISION**

**HARNISCHFEGER CORPORATION**

4400 W. NATIONAL AVENUE • MILWAUKEE 46, WISCONSIN

the P&H Line

# WHIRLEX PACKAGE MULTI-CYCLONE EFFICIENTLY RECOVERS HAMMER MILL, SCREEN AND CONVEYOR DUST



This highly efficient package dust collector consists of an induced draft fan and a collector unit. Each is complete and needs only to be bolted into place at erection. The fan casing, the hopper, the collector casing and the cyclone bodies are 3/16" steel plate. All welded construction is used to insure gas tightness. The completed collector unit forms a box girder of exceptional strength with support structure problems reduced to a minimum. The 9CY18S cyclone tube units are grouped to form a smooth guided inlet for the dust laden gases and a generous hopper is provided to hold the recovered solids. The collector head can be cleaned through special ports without interrupting the operation of the collector. Because of its high efficiency, rugged construction and simplicity of erection, the MTSA-9CY18S package multi-cyclone dust collector is an ideal solution to most dust problems in the rock products industry.

*Write today for descriptive literature and the address of your nearest representative.*

**THE FLY ASH ARRESTOR CORPORATION**

**BIRMINGHAM ALABAMA**

204 North First Street

Telephone 54-6676

Up steep hills—on loose gravel and sand piles
over sharp rocks—slush, mud, gravel—out and over
the highway **GENERALS** deliver more loads

*Faster! Easier! At Lower Cost!*

GENERAL L. C. M.—for most work off-the-road. Massive tread and thick, tough shoulders develop extra traction. Extra wear on tough, jagged surfaces. Stronger rayon cord body with more natural rubber built into its shock-absorber design.

GENERAL H. C. T.—for more work on-the-road. Thick, saw-tooth tread supported by broad, angled shoulder cleats develop extra traction. Smoother rolling, quicker stopping. More original and more recap miles.

***Make Every Worn Tire Work Longer for More Profit!***

**Your GENERAL TIRE DEALER will KRAFT SYSTEM RECAP Worn Tires with the New GENERAL Truck Tire Tread of Your Choice**

You're throwing away money when you throw away worn tires or accept an ordinary "adjustment" for them. Let your General Tire Dealer—a tire expert—restore worn tires with famous factory controlled Kraft System Recapping. You choose from the complete line of on and off-the-road new General Tire treads and he'll put that tread on your worn tire. He can do sectional repairs too. Get Kraft System Recapping—get more profit from every tire.

KRAFT SYSTEM RECAPPING
A GENERAL TIRE SERVICE

**SPECIFY GENERAL TIRES ON YOUR NEW EQUIPMENT**

# DON'T BE STUCK
## with an obsolete compressor in 1953

***What's happened to the 500 ft. compressor everyone used to build?***

***It's gone — completely obsoleted by the "new standard" 600 ft. size introduced by Jaeger in 1946.***

***What's happening to the other old-time sizes?***

***They've been slipping ever since Jaeger brought out 15% to 25% higher "new standard" ratings in 1948, to match modern air tools.***

Today, 125 ft. compressors (the size Jaeger originated to replace the 105) are being sold in Canada under 4 well-known American names. Here, in the U. S., new 125, 185, 250 and 365 ft. compressors (the new sizes Jaeger has been building for 5 years) have begun to be announced.

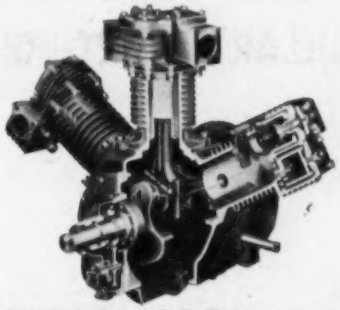
***The facts, and the choice, are clear:***

1: All 60, 105, 160, 210 and 315 ft. portable compressors are today as out-of-date as the old 500 ft.

2: Any higher rated compressors that run hot and shake with vibration are basically old models that have been speeded up.

3: At *prices in every case below those asked for old standard compressors* you can buy a "new standard" Jaeger AIR-PLUS, properly engineered to deliver 15% to 25% more air.

4: This additional air maintains steady 90 to 100 lbs. pressure at today's big tools, *actually increases work output 30% to 40% with the same men and tools.*



**JAEGER Balanced "W" Compressor**

***No other compressors, new or old, have these Jaeger-engineered features:***

- Balanced 2-stage W-type compressor in all sizes, 75 to 600 ft.
- Force-feed lubrication, standard all sizes.
- Automatic intercooler drainage, standard all sizes.
- Reserve horsepower and bigger multi-plate clutches.
- Automatic Fuel Miser control of engine speed.

Why pay more, and get far less, than Jaeger gives you.

Model 125

***The construction industry needs these 6 "new standard" ratings — and no more***

**Model 75** – Runs heavy breaker at full efficiency.

**Model 125** – Runs 2 heavy breakers or a 55 lb. sinker at full efficiency.

**Model 185** – Runs 3 heavy breakers, 1 heavy or 2 medium rock drills at full efficiency.

**Model 250** – Runs a 3½" wagon drill, 2 heavy rock drills or 10 hp Ka-Mo earth drill at full efficiency.

**Model 365** – Runs a 4" wagon drill plus plug-hole drill, or operates 15 hp Ka-Mo earth drill — at full efficiency.

**Model 600** – Runs two 4" wagon drills plus a hand-held drill, or powers a heavy 9B-3 pile hammer — at full efficiency.

**For complete information, ask your Jaeger distributor or write for Catalog JC-1.**

Model 250

Model 600

**THE JAEGER MACHINE COMPANY**

**602 Dublin Ave., Columbus 16, Ohio**

PUMPS • MIXERS • TRUCK MIXERS • PAVING SPREADERS AND FINISHERS

# A PENNY'S WORTH OF WEAR-ARC HARD-FACING ELECTRODES CAN SAVE A DOLLAR'S WORTH OF COSTLY REPLACEMENT PARTS

IMPACT HAMMERS rebuilt with Wear-Arc VIII and hard-faced with Wear-Arc 12 electrodes.

This is just one of innumerable everyday applications for Alloy Rods Company's famous Wear-Arc hard-facing electrodes. There are nine basic types of Wear-Arc and Wear-Home electrodes for every conceivable hard-facing requirement. If you have a hard-facing problem, let Alloy Rods' experienced engineers give you competent advice! Write for Bulletin 5651.

FLAMING ARC TRADEMARK

Manufacturers of Arcaloy stainless steel electrodes • Bronze-Arc phosphor bronze electrodes • Nickel-Arc and Nickel-Arc 60 electrodes for cast iron • Tool-Arc electrodes for tools and dies • Weld-Arc low hydrogen electrodes. Write for Bulletins on these products.

ALLOY RODS MOVIE • "No Finer Electrodes Made . . . Anywhere," 16 mm. full color and sound, 22 minutes, available without charge for showings . . . educational not promotional . . . write Department M.

ALLOY RODS COMPANY
YORK PENNSYLVANIA

NO FINER ELECTRODES MADE . . . ANYWHERE

AT THE

# M. L. KERNAN QUARRY

A new 1-yd. Lorain shovel, Model 50-1, has just been added to their 24-year old fleet. It is shown at right removing overburden and loading trap rock after blasting. When handling overburden, as shown in the photo, the "50" moves from 1,000 to 1,200 yards per day. The line up of Lorains in the photo below includes this new "50", along with other Lorains the M. L. Kernan Quarry has purchased over the past 24 years. All machines are still working today.

## A QUARRY STORY—24 YEARS OLD

Way back in 1929, the M. L. Kernan Quarry in South Orange, New Jersey, bought the machine shown at left in photo. In the 24 years that followed, they have consistently relied on dependable Lorain performance in their stripping and quarrying operations. In the large photo, you will see the parade of 4 Lorains that have come through years of rough-tough use, digging thousands upon thousands of yards of material. According to Louis E. Kernan, all of these Lorains are in excellent operating condition.

Past performance was the reason the M. L. Kernan Quarry recently selected a Lorain again when more production capacity was needed. In scores of quarries, through many years, Lorain quality has stood the test of rock and time. It's a money-saving story that you should know . . . and you can get it from your nearby Thew-Lorain Distributor. He can offer you shovel capacities from 1/2 to 2-yd. classes, crawler or rubber-tire mountings, 6 interchangeable front end types. It is the world's most complete shovel-crane selection.

THE THEW SHOVEL CO., LORAIN, OHIO

## When the job's a big one...

# that Pioneer Edge

### Plant turns out 2,800 yards daily for Falcon Dam

● Big things are happening down on the Rio Grande. Seventy-five miles below Laredo and twenty-five miles from the nearest railhead, work is underway on huge Falcon Dam . . . the greatest international project of its kind ever undertaken jointly by the United States and Mexico.

Before it's completed, this mammoth project will require 18,700,000 cubic yards of earth and rock fill, 420,000 yards of riprap, 17,500 tons of structural steel, and 261,000 cubic yards of concrete.

Because of its record for efficient and economical production, PIONEER equipment was chosen for the important job of supplying all sand and gravel for the concrete and various other uses.

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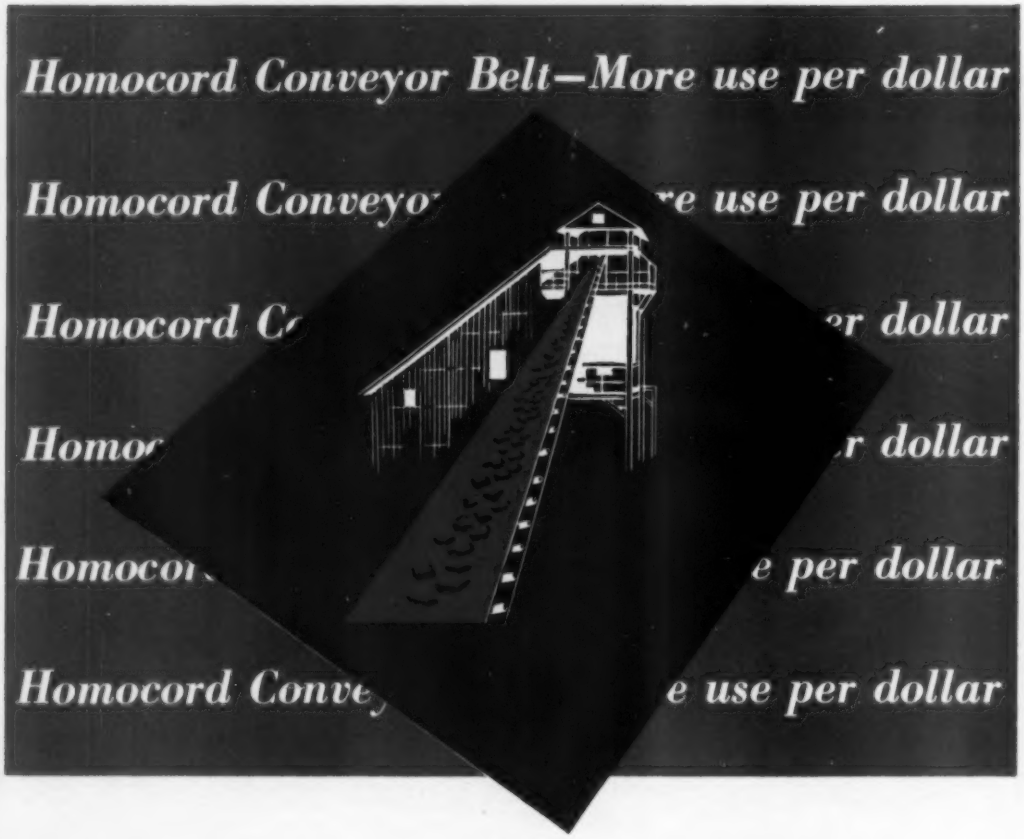


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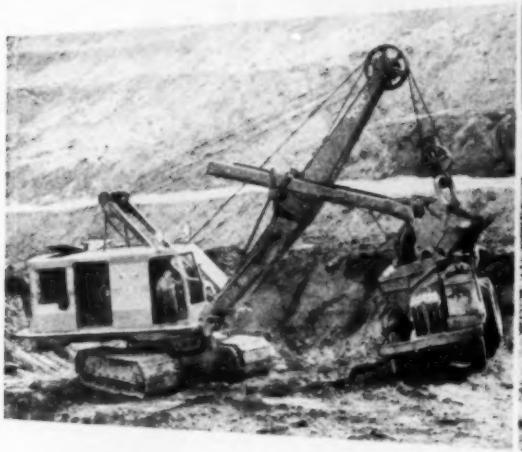

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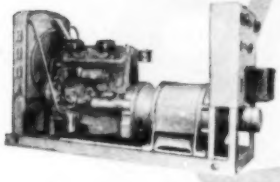

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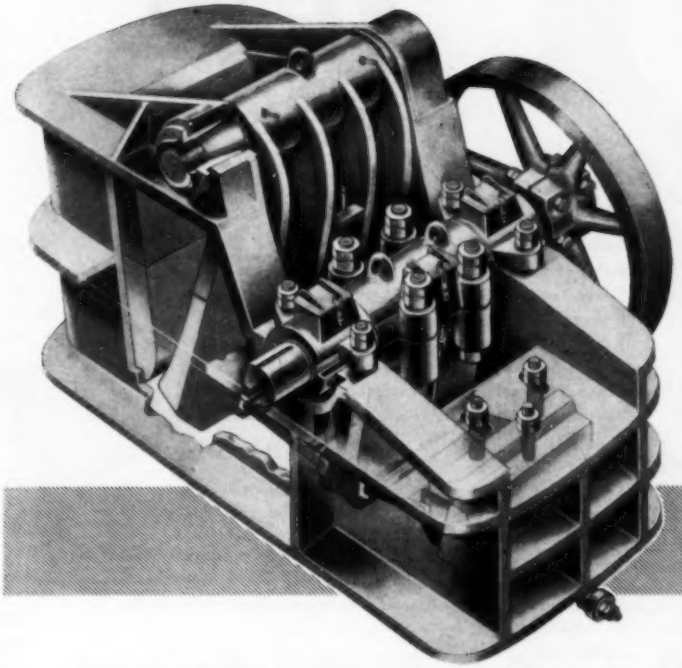

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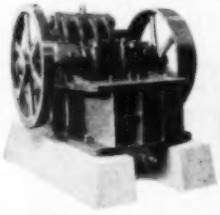

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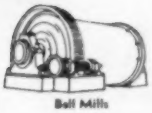
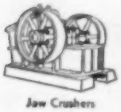


Ball Mills



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PIT AND QUARRY

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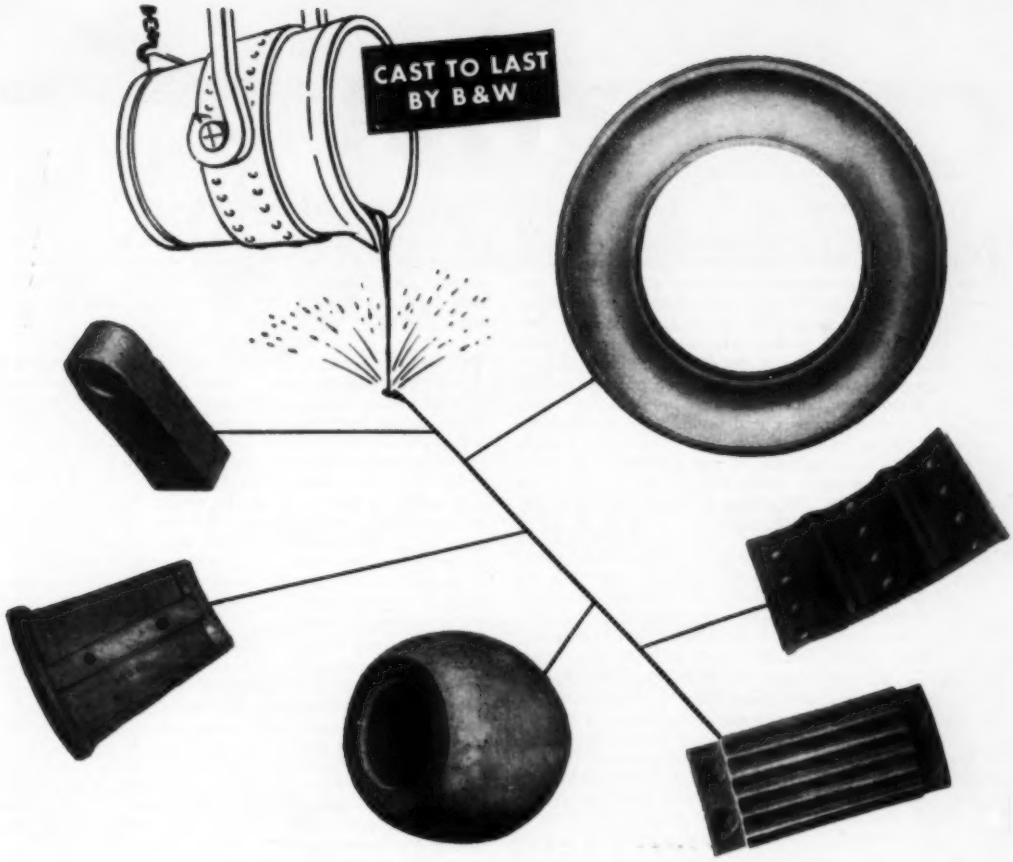


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# editorial

## *Now Is the Time to Cut Government Spending*

PROBABLY the most discussed subject at the present time is what the Eisenhower administration will do to cut down government spending and reduce taxes and the national debt. Prompt and effective action along these lines was promised both before and since the election. These promises, we feel sure, were sincere and were made with full knowledge of the difficulties besetting any such efforts, and there is every indication now that something drastic will be done. But such promises have been made before with sincerity and under similar conditions but with little or no result. We believe this was because the very size and complexity of our governmental structure made it impossible to do such a job piecemeal, by cutting down or even eliminating the least important government departments and activities.

With each succeeding year the size, complexity, and cost of our government has increased, until now what the new administration will inherit is probably the most baffling governmental structure the world has ever seen. This structure, according to the Chamber of Commerce of the U. S., consists of 2,055 major units of government arranged in varying degrees of logical or illogical order. The Chamber lists the following: 12 departments; 9 agencies; 19 commissions; 28 administrations; 21 types of corporations (comprising 2,000 actual corporations); 594 officers of this, that, and the other; 125 services of or for; 110 bureaus; 645 divisions; 25 branches; 416 miscellaneous missions, colleges, commands, authorities, projects, systems, etc. This colossus employs one out of every six workers in this country and is the largest single employer in many of our large cities. Its support is costing an average of $1,389 annually for every family in the entire nation.

MOST previous efforts to streamline the government and reduce spending and taxes have failed because they attempted to assess the value of each function and treat it accordingly. In so doing it was found that each individual function became a subject of major controversy, with violent objections from within and without to even the slightest curtailment of its activities or further expansion. In practically every case the head of the threatened department fought vigorously against any reduction of its (and his) importance; in this fight department heads were aided by sympathetic higher-ups or congressmen and by special interests and local or business groups interested in the continuance of the departments. The results usually obtained by this method of attack have been unimportant and any losses bureaucracy may have sustained have been transitory. Efforts to cut appropriations for various projects or causes have been similarly ineffectual and for very similar reasons.

The fight of the Hoover Commission against waste and extravagance in government is a good example. Here a former president who has amply demonstrated his thorough knowledge of business management and governmental procedure, presented recommendations which did not deal with government functions, but simply with improved ways of having the government do the same things it was doing before. The chief aim was more efficiency at lower cost to the taxpayers. Everyone, apparently, was for the Hoover recommendations, in general. On any specific point, however, powerful opposition developed, with the result that, to date, comparatively little has been accomplished.

THE above presents a rather hopeless picture, but there are encouraging signs. There is a widespread and growing feeling on the part of individuals and groups that things cannot be permitted to continue as they are. Many organizations and business groups have already gone on record as suggesting the curtailment of expenditures for which they had ardently fought. Apparently as a result of this changing attitude of the public, Congress, during its last session, cut appropriations requested by federal agencies by $8,500,000,000. This was by far the largest budget slash ever made. Now the economy-minded 83rd Congress is concentrating its attention on further trimming of expenditures, especially those in the emergency or temporary category.

This national frame of mind, at a time when business and employment are at peak levels and future prospects are good, presents the Eisenhower administration with an unparalleled opportunity to do something about this greatest threat to national security and solvency. If the problem is approached intelligently much can be accomplished. It would, we believe, be a mistake if the old method of attacking the problem piecemeal were to be followed. In spite of fervent protestations to the contrary, and in spite of partly-aroused public feeling, such tactics would soon arouse the same opposition from special interests which has killed all previous efforts. Even if successful, such methods would still be impractical as it would take years to untangle the complex mess that is our government.

A MUCH simpler, quicker, and more effective way would be to slash all regular appropriations and departmental budgets by a flat percentage. This method, we believe, would meet with relatively little opposition from special interests which would not be able to plead discrimination, and it would meet with whole-hearted public approval. Such a cut would, of course, hurt certain interests and industries, including some of the nonmetallic minerals industries, at least temporarily, but would benefit all of them in the long run. Any injustices worked by this method could be adjusted later.

Taxes could be cut similarly but to a lesser extent in order to permit balancing the budget and reducing the national debt. A possible step in that direction is the bill introduced before the 83rd Congress as it convened on January 3, to reduce income taxes on most individuals by 5½ percent by moving up to June 30, 1953, the expiration date of the 11 percent annual increase in income taxes that went into effect on November 1, 1951, and is due under existing law to expire on December 31, 1953.

*Walter E. Trampler*

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Let your Caterpillar Dealer demonstrate the big yellow engines that turn red ink to black. And remember that Caterpillar Diesel Engines are available in machines built by leading equipment manufacturers. Specify Cat power in the equipment you buy.

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# news of the industry

PIT AND QUARRY

## Mexican Cement Output To Hit 2,000,000 Tons in '53 Says Construction Agency

Mexican internal demands for cement will be completely satisfied during 1953, according to a statement issued by the National Chamber of the Construction Industry. It is estimated that production will hit more than 2,000,000 tons, making Mexico an exporter of cement.

It was revealed that cement plants within the republic have increased their installations and are working on further construction and improvements which will permit them to supply the national market and earmark certain quantities for export purposes. Within the Federal District (Mexico City and surburban environs) actual monthly cement consumption stands at 135,000 tons, making it the principal consumer of cement.

Members of the Chamber insisted that the problem of cement supply has been solved as a result of work completed during the Aleman regime. Since there is only one plant producing white cement, this product may be in short supply, but this problem will also be resolved.

Cement manufacturers have pledged themselves to increased production of all types of cement to avoid the "speculation" and "black market" activities of last year. The Chamber declared that it anticipates no stoppage on public or private construction programs due to lack of cement in 1953.

A spokesman of the industry claimed that a production of 3,000,000 tons annually will be achieved by 1955. It is expected that this expanding production will keep pace with Mexico's rapid industrialization and building boom.

The cement industry began in Mexico in 1917 with the production of 4,000 tons of cement by the Tolteca plant. Presently there are 18 cement plants in Mexico, many of which produce 500 tons daily. Some plants are undergoing expansion in order to attain an ultimate daily capacity of 1,000 tons.

## 49th Annual A.C.I. Meeting Scheduled for February 17-19

The American Concrete Institute will hold its 49th annual convention at the Statler Hotel, Boston, Mass., from February 17 to 19, 1953. The three-day meeting will begin with consideration of new or revised standards and special publications and a showing of two new films on concrete work now being completed. A general session on the opening day will include papers on foundations, research and developments in concrete, specifications, and specialized use of concrete. In the evening a number of motion pictures on concrete will be shown.

On the following two days sessions will be devoted to vibration of concrete, design problems and methods, thin-shell precast concrete, and general problems relating to uses and durability of concrete.

The annual research session will review current research projects and report on their progress. A panel discussion emphasizing practical problems in concrete and their solution will conclude the formal sessions.

## Price, Webb, and Conly Re-elected to Posts In Bituminous Association

J. P. Eyre Price was re-elected president of the Bituminous Concrete Association of Pennsylvania at the organization's annual meeting at Harrisburg on November 20.

Mr. Price, who will begin his fifth term as president, is also the president of the Wyoming Sand and Stone Company and of Foam-Crete Incorporated, both of Scranton, Pa. In addition, he is currently president of the Pennsylvania Sand and Gravel Producers Association.

Frank Webb, president of the Interstate Amiesite Company of Wilmington, Del., was re-elected vice-president of the Bituminous Concrete Association. Harlon Conly, president of the Asphalt Paving and Supply Company, Norristown, Pa., was re-elected secretary and treasurer.

## Coming Events

*January 18-21, 1953—Washington.* Annual convention, National Agricultural Limestone Institute, Inc. Hotel Statler.

*January 25-29, 1953—Cleveland.* 33rd annual convention and exhibit, National Concrete Masonry Association. Public Auditorium.

*February 2-4, 1953—New York.* 36th annual convention, National Crushed Stone Association. Hotel New Yorker.

*February 9-11, 1953—Boston.* Annual meeting, American Road Builders' Association. Hotel Statler.

*February 16-19, 1953—Los Angeles.* 175th general meeting, American Institute of Mining and Metallurgical Engineers. Hotel Statler.

*February 17-19, 1953—Boston.* 49th annual convention, American Concrete Institute. Statler Hotel.

*February 23-26, 1953—San Francisco.* 37th annual convention, National Sand and Gravel Association. Hotel Fairmont.

*February 23-26, 1953—San Francisco.* 23rd annual convention, National Ready Mixed Concrete Association. Hotel Fairmont.

*February 25, 1953—Dallas.* Fourth annual convention and meeting, American Concrete Pressure Pipe Association. Baker Hotel.

*February 26, 1953—Dallas.* Third annual convention and meeting, American Concrete Agricultural Pipe Association. Baker Hotel.

*February 26-28, 1953 — Dallas.* 45th annual convention and meeting, American Concrete Pipe Association. Baker Hotel.

*March 4 and 5, 1953 — Des Moines.* Eighth annual convention, Iowa Agricultural Limestone Association, Inc. Savery Hotel.

## Dodge Forecast Predicts Little Change in Volume Of Construction in 1953

A dollar volume of construction in 1953 "practically equal" to that of booming 1952 is foreseen by the F. W. Dodge Corporation in its annual advance estimates, published late each year in *Architectural Record*.

These estimates are prepared by Thomas S. Holden, president, and Clyde Shute, manager of Dodge's statistical and research division. They apply to the 37 eastern states covered by Dodge construction news gatherers, and are accepted by the industry as a factual basis for 48-state construction indexes.

It is believed that by the end of the year the Dodge figures will have reached $16,008,000,000 of contracts awarded in all categories of construction, and the estimate is that the 1953 total will be $16,020,000,000, a change of virtually zero. The article states:

"Within that framework, the following changes in dollar volume as between 1953 and 1952, are estimated: non-residential, up 8 percent; residential building, down 11 percent; total building, down 2 percent; public works and utilities, up 8 percent. Dollar volume of private building and engineering contracts is expected to decrease 7 percent; public building and engineering contracts are expected to increase by 10 percent.

"Total new building floor space to be contracted for is estimated at 1,107,000,000 sq. ft. for 1952, and 1,038,000,000 sq. ft. for 1953; the indicated decline is 6 percent.

"New non-residential floor space, with an indicated over-all 3 percent increase in 1953, is expected to include increased volume of commercial building, educational and science buildings, hospitals and institutions, and public and social and recreational buildings. The reason why anticipated dollar volume of non-residential building shows more favorably than non-residential floor space is that certain large atomic energy projects are projected for 1953. These projects will of necessity be recorded in terms of dollars only, since dimensions and floor area figures will not be revealed.

"In terms of new floor space and dollars, new residential building is expected to decline 11 percent in 1953; new dwelling units are expected to decline 12 percent. These estimates assume that there will be no marked easing of housing credit.

"The anticipated 8 percent increase in dollar volume of heavy engineering contracts assumes a 5 percent increase in private utility construction and a 9 percent increase in public engineering projects."

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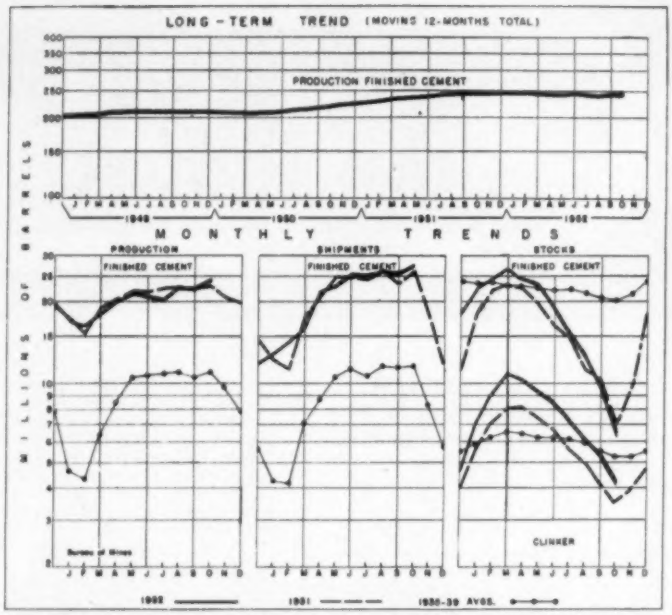
The Frontier Stone Products, Inc., Lockport, N. Y., and the Louisville Cement Company of New York, whose plant is at Akron, N. Y., received safety trophies for "extraordinary cooperation" during the annual safety contest sponsored by the New York State Insurance Fund.




**SUMMARY—Production of finished portland cement in October, 1952, as reported to the U.S. Bureau of Mines, totaled 24,181,000 barrels—a 6 percent increase over the October, 1951, figure. Mill shipments totaled 27,222,000 barrels—an increase of 4 percent as compared to shipments in October, 1951, while stocks of 6,543,000 barrels of finished portland cement were 9 percent less than those of one year ago. Clinker production during the month totaled 23,241,000 barrels—4 percent more than in October, 1951.**

**PRODUCTION—One hundred and fifty-five (155) plants located in 37 states and in Puerto Rico reported a production of 24,181,000 barrels of finished portland cement during the month, as compared to 153 plants which manufactured 22,797,000 barrels in October, 1951. Clinker production increased from the 22,396,000 barrels produced in October, 1951, to 23,241,000 barrels in October, 1952.**

**SHIPMENTS—Mill shipments of finished portland cement were 4 percent higher than in October, 1951, and totaled 27,222,000 barrels. Shipments were greater in 12 districts and lower in 7 districts, as compared to shipments in October, 1951. Following the trend of the last several months, shipments showed the greatest increase, 31 percent, in the Virginia-Georgia-Florida-Louisiana-South Carolina-Mississippi district. Marked gains were also recorded by the Colorado-Arizona-Wyoming-Montana-Utah-Idaho and the California districts, with increases of 21 percent and 18 percent, respectively. The Puerto Rico and Kansas districts reported the major decreases in shipments.**

**STOCKS—Mill stocks of 6,543,000 barrels of finished portland cement were reported at the end of October, 1952—9 percent less than on the same date a year ago, while stocks of clinker amounted to 4,202,000 barrels—19 percent greater than on October 31, 1951.**

## New Cuban Cement Concern Building 2,400 Bbl. Plant

Cemento Gibara has begun construction of a new $4,500,000 cement plant at Gibara in eastern Cuba, according to Nestor Galvez, president of the new firm and also president of a local Cuban bank. The plant, which will be Cuba's second and also its largest cement plant, will have a daily capacity of 2,400 barrels.

The firm plans to have the plant operating by the end of 1953. Fish Engineering Corporation, Houston, Tex., is constructing the new plant. Capital is being furnished by Americans, Europeans, and Cubans.

## Gulf Sulphur Corporation Has 2,226,500-Ton Reserve

According to reports from the Gulf Sulphur Corporation, "taking into account the new sulphur well on which drilling was commenced in September, 1952, the company's indicated reserve as of November 23, 1952, amounts to 2,226,500 long tons of sulphur".

Drilling the new well has nearly quadrupled the previously indicated reserve. The calculations are based on a drilling area of approximately 15 acres. Gulf Sulphur now has three rigs on its property and has begun drilling additional wells.

## A.R.B.A. Annual Meeting Scheduled for February 9-11

Boston will be the setting for the American Road Builders' Association's 1953 annual meeting from February 9 to 11. Sessions will be held at the Hotel Statler.

The newest developments in road building, maintenance, and administration; talks by nationally known speakers; panel sessions and discussions; and technical committee meetings are scheduled. Seven active A.R.B.A. divisions will participate. Members are urged to make hotel reservations promptly.

## Natl. Gypsum Co. Buys Asbestone Corp. Property For $5,000,000 in Stock

National Gypsum Company officials have announced the completion of negotiations for the acquisition of Asbestone Corporation, including plants, working capital, and goodwill. "Asbestone with plants at New Orleans, and St. Louis will substantially improve National Gypsum's position in the market for a complete line of building materials," said Melvin H. Baker, chairman of the board of National Gypsum Company.

The acquisition will round out National Gypsum's present line of interior wall and ceiling materials and exterior sheathing by adding Asbestone's well-established lines in asbestos-cement siding, roof shingles, corrugated and flat boards and other industrial products.

It is understood that this purchase involved a cost of approximately $5,000,000 in National Gypsum stock. The Asbestone trademark has been a familiar one for over 30 years.

It is estimated that Asbestone, reportedly the nation's largest independent manufacturer of asbestos-cement products, will have sales for the current year of approximately $10,000,000, extending its continuous earning record over the past several years.

This addition will give National Gypsum a total of 35 plants located in 23 states and Canada. During the last 10 years, National's sales have grown from $25,000,000 in 1941 to an estimated $98,000,000. Starting 27 years ago with one product, the company now manufactures more than 150 products for use in building construction. These include gypsum board products and plaster, lime, insulation board, rock wool, metal lath, paint, and a line of sound control products.

## DMPA Approves Construction Of Arizona Asbestos Mill

Preliminary arrangements are being made for the establishment of a custom mill and purchasing facilities in Arizona to handle chrysotile asbestos from indenounced by Jess Larson, administrator of the Defense Materials Procurement Agency.

It was pointed out that although there are many known deposits of very high grade chrysotile asbestos in Arizona, the material is now being mined only on a limited scale. It is hoped that the contemplated program not only will stimulate increased production from known deposits but speed up the search for other deposits.

The United States is almost wholly dependent on foreign sources for high-grade, long-fiber, low-in-iron asbestos, the kind known to exist in many places in Arizona. The material has many military and commercial uses for which no satisfactory substitute has been found. Other grades of asbestos, while more plentiful in North America, also are in great demand, and large amounts are imported each year.

The principal reason that more asbestos deposits in Arizona are not now being worked, particularly the smaller ones, is that there are not adequate custom facilities in the area for processing the raw material. Under the new program DMPA will contract with a private firm for the establishment of a modern processing plant in which any raw asbestos found in the region can be treated to meet specifications of the national stockpile and industrial requirements.

## Ohio Operators' Short Course To Be Held January 21-23

On January 21, 22, and 23 a short course will be sponsored by the Ohio Ready Mix Concrete Association and the engineering department of the University of Toledo, sessions to be held at the university. Operators of ready-mixed concrete plants will have an opportunity to attend courses covering approximately the same topics as those presented at the 1952 short course.

Speakers and instructors will include the following: Professor E. Saxer, University of Toledo; H. F. Kriege, France Stone Co., Toledo; E. W. Commings and J. F. Barbee, Ohio State Highway Department; E. M. Brickett, Swampscott, Mass.; N. Wagner, Portland Cement Association, Chicago; W. E. Dickinson, Calcium Chloride Institute; and Lewis Hubbard, Cleveland.

The New Haven Trap Rock Company recently reported a boiler explosion at its Plainville, Conn., plant. The blast demolished a 30- by 50-ft. cinder block building and caused damage estimated at $20,000. The cause of the explosion was not known.

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## *Cover Picture....*

• Our cover this month shows one of the major projects of the New Jersey road construction program—the Trenton Freeway. This view shows one of the big interchanges. Construction costs on the New Jersey Highway System completed in 1952 totalled $17,200,000 for 53 miles. The work included widening, dualization, new alignments, reconstruction, and repairs. On the Federal Aid Secondary System, construction was completed on 6 miles, at a cost of $1,336,000. For the 1953-1954 fiscal year a construction program in the amount of $72,818,000 is planned. Some $9,000,000 in Federal Aid is anticipated; approximately $64,000,000 of state funds.

## 10-Month Building Volume Gains 3% over 1951— October Total Declines

Construction contracts awarded in the 37 states east of the Rockies for the first ten months of 1952 showed a 3 percent rise over the first ten months of 1951's record-breaking year, according to the F. W. Dodge Corporation, construction news and marketing specialists. The current total of $14,048,749,000 compared with $13,585,024,000 a year ago.

October had awards of $1,300,958,000, down 36 percent from the September figure, but 24 percent more than in October, 1951.

Individual classifications in October showed non-residential awards of $470,520,000, down 63 percent from the September total, but up 13 percent over October of last year. Residential awards at $592,313,000 were 14 percent higher than in September and 19 percent more than in October, 1951. Heavy engineering contracts (public works and utilities) were $238,125,000 or 4 percent lower than in September, but 74 percent higher than the October, 1951, total.

Ten-month 1952 comparisons with the same period of 1951 were as follows: non-residential, $5,524,488,000, down 6 percent; residential, $5,690,495,000, up 5 percent; heavy engineering, $2,833,766,000, up 25 percent.

## Canadian Kyanite Discovery Revealed by Minerals Chief

M. F. Goudge, chief of the Federal Industrial Minerals Division (of Canada) recently announced that extensive deposits of kyanite have been discovered in the Mattawa area of eastern Ontario. Reserves running into "millions of tons" of the scarce heat-resistant mineral.

About 25 claims have been staked out, and extensive mining is expected to begin when the Industrial Minerals Division has completed research work on a cheap method of extracting the kyanite from rock.

The discovery was made by V. A. Haw, an Industrial Minerals Division engineer, who found traces of kyanite while examining a sample sent in by a geologist in search of graphite. It was indicated that when fully developed the new deposits will permit Canada to cut down on expensive imports of the material from India and other foreign sources.

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General Portland Cement Company officials recorded net sales for the nine months ended September 30, 1952, at $22,284,800, as compared with $20,417,300 for the like period in 1951. Net profit for the 1952 January-to-October period was $3,458,200; in 1951 the figure was $3,451,900.

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The merger of the Mathieson Chemical Corp. and E. R. Squibb & Sons was approved by a majority of the shareholders of both corporations, and the directors voted to make the merger effective on October 1, 1952.

## Canadian Firm to Make Dead-Burned Dolomite Under British Ownership

Although the Steetley Company of Canada now owns the controlling interest in the Canada Crushed and Cut Stone Company, Hamilton, Ont., no changes in operations or personnel are anticipated by the latter firm, which has been doing business in the Hamilton area for nearly half a century.

The Steetley Company, a British manufacturer of refractory products, has completed an agreement to purchase 125,000 of the currently outstanding 190,000 no par value common shares of Canada Crushed and Cut Stone. The Hamilton concern operates a 550-acre dolomite quarry in West Flamboro and modern crushing plants at Dundas and Hagersville.

It is understood that the Steetley operation in Canada will be similar to its plant in England, which is said to be the largest in Europe. The firm's chief product is dead-burned dolomite, a heat-resistant product used in lining and repairing open hearth and electrical furnaces in the steel industry.

A new $2,000,000 plant scheduled to begin operations in West Flamboro, 11 miles from Hamilton, in 1954 will produce 50,000 tons annually.

## G. F. Twist Elected President Of Pump Manufacturers Assn.

The semi-annual meeting of the National Association of Vertical Turbine Pump Manufacturers was held recently at the Roosevelt Hotel, New Orleans, La. This association is composed of the majority of leading manufacturers of vertical turbine pumps, which are widely applied in the development of underground water supplies for municipalities, industry and agricultural irrigation.

Election of officers for the ensuing year was also held. The new association officers are as follows: president, G. F. Twist, Peerless Pump Division, Food Machinery and Chemical Corp.; vice-president, T. E. Woodruff, Fairbanks Morse & Co., Chicago; and secretary, B. A. Tucker, Peerless Pump Division, Food Machinery and Chemical Corp., Los Angeles. The association will meet again on February 16 and 17 at Las Vegas, Nev.

## International Minerals Plans To Expand Potash Production

International Minerals & Chemical Corporation plans a substantial addition to its sulphate of potash facilities at Carlsbad, N. M., according to an announcement made by A. Norman Into, vice-president in charge of International's Potash Division.

The site of the new plant has been determined, and construction is expected to start within a few months. It is also expected that the plant will be in production around the beginning of 1954. The added production resulting from this expansion will amount to approximately 35,000 tons of sulphate of potash a year.

According to Mr. Into, International's planned additional facilities will help to make the United States independent of foreign imports of sulphate of potash.

## Building Materials Chief Resigns from OPS Post

Walter A. Acheson, chief of the building materials branch of the Office of Price Stabilization, has resigned from his post. He has returned to private industry with his former company, Somers-Barr Company, Champaign, Ill., where he occupies the position of general manager.

Mr. Acheson was succeeded by Irving Rubenstein, formerly an economist in the building materials branch of the OPS.

## D. N. Myers, Bernard Gray To Head Asphalt Institute

At the annual meeting of the board of directors of the Asphalt Institute, held in New York on December 5, 1952, D. N. Myers, president of Byerlyte Corporation, Cleveland, Ohio, was named chairman of the executive committee, and Bernard E. Gray was re-elected president.

Vice-presidents elected for the five U.S. geographical divisions of the institute were as follows: Charles Else, The Southland Company, Division I; P. C. Doyle, The Standard Oil Company (Ohio), Division II; Henry G. Groves, Farmers Union Central Exchange, Inc., Division III; D. D. Williamson, American Liberty Oil Company, Division IV; Howard D. Webb, Envoy Petroleum Company, Division V. These vice-presidents, together with Mr. Myers and Mr. Gray and M. O. Huntress, Allied Materials Corporation, ex-officio as retiring chairman, constitute the executive committee for the coming year.

Herbert Spencer was re-elected secretary of the institute; George R. Christie, Socony-Vacuum Oil Company, Inc., was re-elected treasurer; and John N. Smith, also of Socony-Vacuum, was re-elected assistant treasurer.

● D. N. Myers, chairman of the Asphalt Institute executive committee.

## Permanente Cement Co. Sets New 9-Month Record Of Earnings and Sales

Henry J. Kaiser, president, Permanente Cement Company, recently announced a new record high of consolidated net earnings for the nine-month period ended October 31, 1952, totaling $3,460,626 (after provision for federal income taxes) or $2.47 per share, as compared with $2,157,403 or $1.54 per share for the corresponding period of 1951.

Included in the nine-month earnings is a credit due to federal income tax adjustment of 36 cents per share applicable to the year 1951, due primarily to allowance for percentage depletion computed to be allowable under the Revenue Act of 1951.

Consolidated net earnings for the third quarter ended October 31, 1952, totaled $1,819,727 (after provision for federal income taxes) or $1.30 per share, as compared with $703,456 or 50 cents per share for the corresponding period in 1951.

Included in the quarterly earnings for the period ended October 31, 1952, is a credit due to federal income tax adjustment of 53 cents per share due primarily to allowance for percentage depletion computed to be allowable under the Revenue Act of 1951—36 cents of which is applicable to the fiscal year of 1951 and 17 cents of which is applicable to the first six months of the current fiscal year.

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The Georgia Lightweight Aggregate Company has a new $500,000 plant under construction at Rockmart, Ga. The concern will utilize the idle slate quarries in the area to produce a fired aggregate for use in concrete and concrete block. The plant is expected to be placed in operation about March 15, 1953. It will employ approximately 100 persons, and production is expected to reach about 20 carloads daily.

● Bernard Gray, re-elected president of the Asphalt Institute.

## Labor-Commerce Report Predicts Higher Totals For '53 Building Activity

New construction activity in 1953 is expected to reach a new peak, perhaps rising about $1,000,000,000 over the $32,333,000,000 apparent for 1952, according to outlook estimates prepared jointly by the U. S. Labor Department's Bureau of Labor Statistics and the Building Materials Division of the U. S. Department of Commerce. Some expansion is likely in the coming year in both private and public construction.

The outlook for record construction activity in 1953 assumes that business will remain good, buoyed in part by increasing defense expenditures, at least in the early part of the year. Barring major international developments in 1953, it was assumed also that materials would be plentiful, that the limited controls in force would not interrupt construction operations, that the labor supply would be adequate, and that costs would remain relatively stable.

A peak of $22,200,000,000 in 1953 expenditures for new private construction is anticipated, supported by a continuing high level of housing activity and expansion in public utility plant and commercial building.

About as many private dwelling units are expected to be started next year as in 1952, when the million-unit mark will again be exceeded. Expenditures for new private housing actually put in place, however, at $10,200,000,000, will be somewhat greater than in 1952, because next year will begin with a larger number of units already under way, as the unseasonally large numbers of dwellings begun this fall are completed. Prediction of an active homebuilding year is based primarily on the anticipated favorable economic climate and ready availability of mortgage funds.

Next year is expected to be the tenth in succession of increasing construction activity by the public utilities. Announced expansion goals suggest unprecedented expenditures of about $4,333,000,000 in 1953. Most of the 11 percent rise in volume over 1952 will occur in the gas and electric light and power group, for which an extensive backlog of both industrial and domestic need exists.

Commercial building activity will probably jump by over one-fourth in 1953, continuing the recovery evident in recent months as a result of improved materials availability and removal of credit controls. On the other hand, private industrial building is expected to drop by about the same proportion from this year's record outlay of about $2,250,000,000, as defense plant expansion programs approach completion.

Although 1953 will be another active defense year, the anticipated rise in total public expenditures for new construction, from $10,600,000,000 to $11,300,000,000, is expected to result as much from increasing activity on civilian as on military types of public work. Highway construction will probably reach a new high of $3,000,000,000 next year, or nearly 10 percent above this year's level, reflecting the expanding program of federal aid to highway building, and an anticipated large volume of state toll-road construction. Ground has already been broken for the $300,000,000 Ohio Turnpike project, and work is proceeding rapidly on the $500,000,000 New York State Thruway.

Public school building will continue its postwar expansion into 1953, responding to constantly growing classroom needs. Expected expenditures for schools of about $1,800,000,000 represent a 10 percent increase over the 1952 total, and will be the largest amount of classroom space ever to be put in place in a single year.

On the military side, outlays for military and naval facilities will probably rise about one-fifth to around $1,600,000,000 as considerable new work gets under way, much of it already under contract, and as the extensive current program is completed. A much more moderate rise (3 percent) will occur in public industrial construction resulting entirely from additions to existing atomic energy facilities and commencement of the huge atomic plant near Portsmouth, Ohio. Industrial facilities construction for the Army, Navy, and Air Force, mostly rehabilitation of existing ordinance plants, will be substantially completed during 1953.

Public residential building will drop from this year's level, reflecting the tightened statutory limitation on the start of new federally subsidized housing units. Virtual completion of the Veterans Administration program of hospital construction and reduced funds for the program of federal aid to state and local hospitals will cause a substantial decline in the rate of publicly-aided hospital building.

• These two 2-cu. yd. Lorain shovels, owned by the National Gypsum Company, Buffalo, N.Y., are shown removing landslide overburden and gypsum rock in their Fort Dodge (Iowa) quarry. The one on the left is removing the overburden, which ranged from 40 to 60 ft., and the Lorain L820-J on the right is working against a 25-ft. rock face, averaging 1,000 tons loaded per day.

## C. E. McKim Named Manager Of New Natl. Carbide Plant

When National Carbide's new plant opens at Calvert City, Ky., the works manager will be C. E. McKim, former manager of the Louisville plant, according to an announcement made by J. Carl Bode, president of National Carbide, a division of Air Reduction Company, Inc.

Mr. McKim joined National Carbide at its Keokuk plant in 1929. In 1941 he was transferred to the Louisville plant to take charge of the crushing and packing operations. A few years later he became director of maintenance, and in 1948, plant superintendent. On January 1, 1952, Mr. McKim was appointed works manager at Louisville.

Astor Brown, who succeeds Mr. McKim as works manager at Louisville, has been with the company for over ten years. He was appointed works manager of the Ivanhoe plant in 1950, and held this position until his recent transfer to Louisville.

## Abrasives Concern Formed At North Little Rock, Ark.

The Arkansas Abrasives Company of North Little Rock has recently been formed to process the state's whetstone rock into a finished product. The incorporators include F. J. Thompson, C. L. Cartwright, and Q. O. Harris, all of North Little Rock.

The company is also developing an important market for novaculite chips, formerly considered waste material by manufacturers of grinding stones. This chip material has proved satisfactory for finishing time fuses.

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In response to a petition of the National Lime Association, the Renegotiation Board added lime to the list of exempt materials which had previously included limestone and sand and gravel. As a result, a lime producer need not be concerned with renegotiation of his lime sales.

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The life of the Federal Water Pollution Control Law, Public Law 845, originally passed in 1948, has been extended for three years by the 82nd Congress. As a result, federal activity in stream pollution is certain to continue.

## N.S.G.A., N.I.S.A. Groups Act to Drop Protest On Depletion Regulations

In a communication released by Vincent P. Ahearn, executive secretary of the National Sand and Gravel Association and the National Industrial Sand Association, it was revealed that committees of the two organizations had decided against protesting proposed regulations on percentage depletion. A portion of Mr. Ahearn's report follows:

"The Committees on Percentage Depletion of the National Sand and Gravel Association and the National Industrial Sand Association met in Washington on November 13 to discuss the proposed regulations, which were reviewed, word by word, in the light of the problems of the two industries. Although it appeared that certain individual producers might have special problems, the committees of the two industries concluded that the proposed regulations present no substantial problems for most members.

"Some question was raised as to whether the exclusion of 'thermal action' from the definition of the phrase 'ordinary treatment processes,' would require deduction of the cost of drying from the computation of the gross income from the property. At the request of the Committee on Percentage Depletion of the National Industrial Sand Association, the members of which have the greatest interest in drying, John Sapienza discussed the proposed regulations with officials of the Natural Resources Section and the Legislation and Regulations Division of the Office of Chief Counsel, Bureau of Internal Revenue. This he did on an informal basis. He was advised that the drafters of the tentative regulations did not propose to exclude drying intended to remove moisture or impurities from sand or gravel. 'Sand,' of course, includes industrial sand. The term 'thermal action' is designed by the Bureau to exclude heating processes which produce a substantial change in the mineral product.

"The specific exclusion of 'fine pulverization . . . undertaken in the manufacture of a finished product' was also discussed at some length. Since it seems fairly clear that there is no intention on the part of the Bureau to exclude any process, including crushing, grinding, or pulverization normally applied by producers to obtain the commercially marketable mineral product, the committees concluded not to protest this phase of the regulation.

"The decision not to protest the proposed regulations will not prejudice any member company. Each company will be free to take whatever position will best advance its own interests under a reasonable construction of the regulations as finally adopted. Moreover, no one is barred from attacking the validity of the regulations if that should prove necessary."

## Southern Pacific Milling Co. Expands Holdings and Output

Since the purchase in November, 1952, of the Santa Paula Rock Company and El Rio Rock Company of Santa Paula, Calif., the Southern Pacific Milling Company has broadened its holdings to become a major factor in the industry in the mid-coast area of California.

Involved in the latest acquisition are sand-and-gravel plants with production capacities in excess of 200 t.p.h., plus concrete-batching and asphalt operations representing an investment by Southern Pacific of more than $500,000.

Southern Pacific Milling Co. headquarters are in Santa Barbara. The concern, in recent years, has taken over and operated sand-and-gravel, batching, and asphalt operations at Goleta, San Luis Obispo, and Santa Maria. W. H. Mathews is president, and Jacob Will is general manager of the Aggregate Division. Production supervisors include Gerald Keyser, Philip Holmes, Clarence Bolter, and Don Coats.

## Plumb Named Manager Of Slag Sales for U.S. Steel

R. Kenneth Plumb was recently appointed manager, slag sales, United States Steel Company. Mr. Plumb, who was formerly manager of slag sales in U.S. Steel Company's American Steel and Wire Division, succeeds Erle L. Flad, who retired on October 1, 1952, after 43 years of service with U.S. Steel.

Mr. Plumb, a native of Parkersburg, W. Va., joined United States Steel in Pittsburgh in 1917 as a salesman for the Universal Atlas Cement Company. After two years of military service during World War I, he returned to Universal Atlas in 1920.

Ten years later he moved to Cleveland, O., as salesman in the slag sales department of the Carnegie Steel Company, and in 1938 was made Cleveland District representative in the slag sales division of Carnegie-Illinois Steel Corporation. Mr. Plumb became manager of slag sales for the American Steel and Wire Company in Cleveland in 1946, a position he retained when that company became a division of U.S. Steel Company in January, 1952.

R. Kenneth Plumb

## Robinson Clay Product Co. Buys Stowe-Fuller Assets, Assumes Complete Control

All property and assets of the Stowe-Fuller Refractories Co., with plants located at Alexandria, Pa., and Strasburg, Ohio, have been purchased by The Robinson Clay Product Co., Akron, Ohio. Stowe-Fuller was dissolved, as of December 31, 1952. In announcing this acquisition, W. E. Robinson, president of The Robinson Clay Product Co., said that Robinson expects to continue to operate Stowe-Fuller as in the past and that there will be no radical changes in personnel.

In 1889, C. B. Stowe and J. H. Fuller formed a partnership to sell refractories and 10 years later built the plant at Strasburg, Ohio. The partnership prospered and acquired other plants, and in 1923 the Stowe-Fuller Refractories Co. was incorporated.

In later years the officers of Stowe-Fuller approached Mr. Robinson with the suggestion that he purchase a controlling interest and take over the management of the company. As a result of these negotiations a contract was agreed upon and in 1936 Mr. Robinson purchased a controlling interest and assumed the management.

Since 1936 the two companies have become more closely affiliated and in 1951 it was decided that Mr. Robinson purchase all property and assets and assume the liabilities of Stowe-Fuller, so that the two companies could be consolidated. This was done during 1952.

As a result of the negotiations the operations formerly conducted by Stowe-Fuller will, effective January 1, 1953, be carried on by The Robinson Clay Product Co.

## Bureau of Standards Issues Report on Heat of Hydration

The National Bureau of Standards recently published a bulletin on *Heats of Hydration and Pozzolan Content of Portland-Pozzolan Cements*, prepared by Edwin S. Newman and Lansing S. Wells. The 6-page report describes methods for the measurement of the approximate heat of solution in acid of portland-cement-pozzolan mixtures; it also gives examples of estimating the heat of hydration of portland-pozzolan cements.

Determinations of the amount of material undissolved in the calorimeter, as well as the heats of solution, were applied to the problem of determining the composition of portland cement and pozzolan mixtures.

The booklet can be obtained from the U.S. Government Printing Office, Washington 25, D.C., for 10 cents.

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The only plant in the country reportedly using perlite aggregate as a base for mineral acoustical tile has been purchased by the Kaiser Gypsum Division of the Henry J. Kaiser Company from Dant and Russell, Portland, Ore. Included in the sale are an open-pit mine, processing and acoustical tile plants, an office building, a warehouse, residences for the staff, and living quarters for workers.

## International Minerals Has New Beneficiation Process For Phosphate and Potash

The development of a new and revolutionary ore beneficiation process applicable to potash and phosphate as well as to many other types of ores, has been announced by Louis Ware, president of International Minerals & Chemical Corporation. "This new process results in a great economy in comparison with any other present methods. The process which uses neither re-agents nor water, but is a dry beneficiation method, has been named the LeBaron-Lawver Process," Mr. Ware said.

The new method of refining ore was developed under the direction of Dr. Paul D. V. Manning, International's vice-president in charge of research, and Dr. I. M. LeBaron, director of International's research laboratories. Also associated in the project was James E. Lawver and others on the corporation's research staff.

Mr. Ware also announced that International will immediately build a new and larger pilot plant at the present Carlsbad, N. M., refinery to operate continuously treating semi-commercial quantities of potash by means of the new method. Plans also are now being developed for another shaft and mine on International's new ore body in the Carlsbad basin. Mr. Ware announced that designs are nearing completion for constructing the first large potash-producing unit in that location which will utilize the new process.

In the LeBaron-Lawver dry beneficiation process the ore is ground, dried, and given a simple and inexpensive treatment, after which the ground ore is passed between electrodes. As the treated ore passes between the electrodes, it separates into various minerals.

Mr. Ware stated that the new process has been developed as the result of many years of research at International's experimental station and pilot plants at Mulberry, Fla., where large tonnages of potash ore were shipped in sealed containers from Carlsbad for the experiments. The Florida laboratories of the corporation comprise one of the largest research centers in the country working on the beneficiation of ores. A number of patent applications have been filed covering the new process and the equipment used.

## Colorado Fuel & Iron Affiliate Acquires Roebling's Sons Co.

A wholly-owned subsidiary of The Colorado Fuel and Iron Corporation has contracted to buy all the manufacturing business, plants, and inventories of John A. Roebling's Sons Company. The announcement was made by Charles Allen Jr., chairman of the board of The Colorado Fuel and Iron Corporation, and Charles R. Tyson, president of Roebling.

The Roebling business will be operated as a subsidiary of Colorado Fuel and Iron under the Roebling name. Mr. Tyson, president of Roebling since 1944, will continue to direct the operations of the Roebling plants.

Alwin F. Franz, president of Colorado Fuel and Iron, stated that after the purchase of Roebling, Colorado Fuel and Iron's total consolidated sales volume is expected to approach $300,000,000 a year.

Roebling was founded in 1841 by John A. Roebling, builder of the Brooklyn Bridge. It operates plants in Trenton and Roebling, N. J., producing steel wire, cold rolled steel specialties, wire rope, electrical wire and cable, etc.

The net depreciated value of the fixed assets being purchased is approximately $23,500,000 and the current value of inventories is approximately $17,500,000. The purchase will be financed in part by the private placement with a group of insurance companies of $15,000,000 of first mortgage bonds of the subsidiary which will acquire the Roebling business. As part of the transaction, Colorado Fuel and Iron will sell privately $10,000,000 of its cumulative preferred stock, Series B.

The Colorado Fuel and Iron Corporation, one of the nation's largest steel producers, operates basic steel plants in Pueblo, Colo.; Buffalo, N. Y.; and Claymont, Del. With its subsidiaries, it has seven other plants in Massachusetts, Pennsylvania, and California.

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According to the *Ag-Lime-O-Gram*, bulletin of the Iowa Agricultural Limestone Association, Inc., Garvin C. Matthiesen of Akron, Iowa, is the recipient of the 1952 scholarship award of the association. The award is given annually to an agronomy major. Mr. Matthiesen is a senior at Iowa State College.

**• According to the National Foundation for Infantile Paralysis, polio incidence is becoming worse in approximately the same proportion that March of Dimes research is improving. The outlook today is even more serious than it was a few months ago. To quote a recent bulletin: "While scientists this year (1952) were discovering that gamma globulin provides marked, if temporary, protection against paralytic polio, the disease claimed more than 50,000 victims in an outburst as perverse as it was unprecedented." It is because of the seriousness of the situation that we wish to lend our support to the current campaign of the March of Dimes. Your contribution will help to win the fight against polio.**

## International Minerals Announces Acquisition Of Consolidated Feldspar

Consolidated Feldspar Corporation, Trenton, N. J., has announced the sale of all its assets to the International Minerals and Chemical Corporation in exchange for 108,534 shares of International's common stock. Acquisition took place on November 28, according to a joint statement issued by Louis Ware, International president, and A. J. Fink, board chairman of Consolidated.

International operates plants in 40 cities and has five product divisions—phosphate, potash, industrial minerals, plant food, and amino products. A year ago the Industrial Minerals Division was established upon the acquisition of Eastern Clay Products, Inc., which serves as the base for the division. Eastern Clay has five plants in three states and produces refractory clays, refractory specialties, foundry bonding clays, bentonites, and oil well drilling muds.

In line with International's intention to expand in industrial minerals—the firm has laboratories in Illinois, Florida, New Mexico, and California—the acquisition of Consolidated is an important forward step. This concern has 14 plants in 9 states and the Province of Quebec, and is known as the largest producer in the country of the important mineral feldspar. Among its other products are the following: mica, flint, aplite, beryl, lepidolite, spodumene, and tantalite. Consolidated owns what is said to be the largest reserves of nepheline syenite on the continent.

## Bureau of Mines Publishes Survey Report on Asbestos

The United States Bureau of Mines recently published a bulletin entitled *Materials Survey Report, Asbestos*, the first of 17 strategic minerals reports to be completed. The volume is a result of an exhaustive raw material survey recently completed by the Bureau of Mines.

*Asbestos* gives a clear, accurate picture of the status of asbestos in the United States. Included are sections on its uses, production, mining and milling methods, distribution of domestic and foreign deposits, world production and prices, the need for new sources of supply, and many other factors inherent in a detailed study of this vital defense material. The report also contains many helpful maps and charts.

The Bureau of Mines is in the process of preparing and printing reports dealing with other strategic defense materials, including aluminum, antimony, iron ore, lead, nickel, and others.

This report may be ordered from the Government Printing Office, Washington 25, D. C., at $1.75 per copy.

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Since the death of J. A. Dunaway in July, 1952, the Peery Lime Company at North Tazewell, Va., has been operated by Mrs. Mary B. Dunaway. Since Mrs. Dunaway wishes to sell the business, she would welcome correspondence with persons interested in the plant.

# 30 years ago in Pit and Quarry

By WALTER E. TRAUFFER

THE feature article of the January, 1923, issue of PIT AND QUARRY was a complete description of the new plant of the Kelley Island Lime & Transport Company at Marblehead, Ohio, which was heralded as the world's largest combined crushing and flux plant with a capacity of 1,250 t.p.h. This plant was notable not only for its size but also for its excellence of design and construction. The two No. 24 gyratory primary crushers were in a concrete-lined pit in the quarry with their tops 10 ft. below grade. The 2¼- to 6-in. flux was produced by two 5- by 24-ft. revolving screens. The minus 2¼-in. stone went to four 4- by 20-ft. revolving screens, followed by two 5- by 10-ft. shaker screens. The 8- to 10-in. oversize from the first screens went to two No. 8K gyratory crushers. The plant was entirely electrically powered with individual motors for every item of equipment, and the control system was ahead of current practice.

Also described was the new plant of the Consumers Company at Racine, Wis., which was then considered a model of mechanical efficiency, flexibility, and operating economy. (This plant was almost completely destroyed by fire a few years ago.) This operation was especially notable for the efficiency of its blasting practices, which were then in charge of A. L. Adrianson, now of the Universal Vibrating Screen Company. Another interesting feature was the large water softening installation which made the hard water available suitable for use in the boilers of the shovels, crushers, locomotives, etc.

The Waukesha Lime & Stone Co., Waukesha, Wis., set a record when it built a new pulverizing plant in six weeks to replace a plant destroyed by fire. A feature of this plant was a Sandvik steel belt conveyor 150 ft. long which carried material from the main crushed stone plant to the drier, which was the first step in the pulverizing operation.

A complete program of the National Crushed Stone Association's annual convention, to be held at the LaSalle Hotel, Chicago, January 15-17, 1923, showed an extensive and varied program, with many prominent speakers. Record attendance was expected, partly because the American Road Builders' Convention and Road Show was to be held simultaneously. Among those on the program were E. J. Krause (a past president); Harry H. Brandon; Dr. Oliver Bowles; J. Barab (Hercules Powder Co.); Otho M. Graves; F. T. Gucker; W. Scott Eames; W. J. Roberts (Traylor Engineering & Mfg. Co.); Thomas H. Robins Jr. (Robins Conveying Belt Co.); Thomas H. MacDonald (U. S. Bureau of Public Roads); E. J. Mehren; George E. Schaefer; and Professor Duff A. Abrams.

Brief outlines were also given of the programs of the National Sand and Gravel Associations at the Raleigh Hotel, Washington, D. C., January 24-26; the American Road Builders' Association, Commodore Hotel, New York, January 22-23; and the Indiana Crushed Stone Association, LaSalle Hotel, Chicago, January 15, 1923.

Brief reports were given of the conventions of the Wisconsin Mineral Aggregate Association, held December 21, 1922, at the Pfister Hotel, Milwaukee; and the Missouri Valley Association of Sand and Gravel Producers, December 14, at Kansas City, Mo.

A feature of this issue was the report of an industry-wide questionnaire in the various pit-and-quarry industries on the advisability of conducting operations in three shifts through the whole 24 hours. Hundreds of replies were received, but there were only a few whole-hearted supporters of night operation.

In the news was a report of the fire which on November 15, 1922, destroyed the distributing plant of the Huron Portland Cement Company at Detroit, Mich., at a loss of $250,000. Improvements were announced for the Duluth, Minn., plant of the Universal Portland Cement Company, to cost about $532,000.

## Green Pastures Awards Made At New England Exposition

At the recent Eastern States Exposition in Springfield, Mass., the annual New England "Green Pastures" awards were made to several area and state winners. The main purpose of the "Green Pastures" program, which began in 1948, is to promote a better grassland agriculture. It encourages the growing and use of high-quality forage for pasture, hay, and silage by the economic use of land. This in turn permits the production of milk or meat at the lowest possible cost and consequently the development of a more prosperous agriculture in the area. In 1948 only a few farmers participated in the contest. Participation increased annually, and in 1952 a total of 3,237 farmers were enrolled in the six New England states.

Each winner this year used a well-managed forage program of pasture, silage, and hay, all heavily fertilized and well limed, which paid dividends in this contest as well as in the milk pail.

To stimulate greater local interest and increase participation in the contest in Massachusetts, a group of the producers and distributors of agricultural liming material serving the state provided loving cups for first place winners in each county and medals for the second and third place winners. These awards were made by the county agents at local fairs or similar gatherings.

● Every month in the year thousands of people in need or distress reach out to the Red Cross for the help they must have, help that comes from the generous efforts and support of housewives, businessmen, industrial workers, school children, professional workers — your nextdoor neighbors — and countless others who serve their fellow man through the Red Cross.

Every March Red Cross volunteers turn to their neighbors and ask help in answering the call of those in need. Let us respond generously to this appeal so that we can answer the call of humanity through our Red Cross.

## Gulf Sulphur Corp. Announces Fourth Deposit in Mexico

Gulf Sulphur Corporation announces the discovery of its fourth rich sulphur deposit in its Mexican properties. Previous explorations indicated that these properties contain some of the world's richest elemental sulphur producible from brimstone by the Frasch process.

The company has already cored 52 ft. of rich sulphur formation in this new well, and is still drilling through sulphur. This latest discovery will add thousands of tons of sulphur to its present proven reserves of more than 600,000 long tons.

This development fully justifies the confidence of Gulf Sulphur Corporation in the continuing sulphur richness of its Mexican properties. It should do much to alleviate the anxiety of industry over the rapidly diminishing stock-piles of Frasch process sulphur.

Discoveries such as these achieved by Gulf Sulphur Corporation should be most heartening to the steel, rubber, petroleum and other basic industries of the United States in enabling them to catch up with the nation's mobilization schedules.

## J. L. Workman Is Victim Of Fatal Accident at Quarry

On October 11 Jess L. Workman of the J. L. Workman Quarry near Floyd, Iowa, was the victim of a fatal accident. A truck backed under a bin while he was shoveling below, crushing him against a timber. He was rushed to a hospital at Charles City, Iowa, but died a short time after his arrival there.

Mr. Workman had operated the limestone quarry since 1937. He had been active in civic and church organizations and also in local business circles. He was a popular member of the Iowa Agricultural Limestone Association.

# 36th Annual Convention Program
# National Crushed Stone Association
## New Yorker Hotel, New York, Feb. 1—4, 1953

SUNDAY, FEBRUARY 1

9:00 a.m.—5:30 p.m.—Registration
10:00 a.m.—Meeting of Manufacturers' Division Board of Directors
2:00 p.m.—Meeting of N.C.S.A. Board of Directors

MONDAY, FEBRUARY 2

8:30 a.m.—5:30 p.m.—Registration

Morning Session

9:30—"Paving the Angles" and "Proving Ground Test Activities"—Moving Picture presented through courtesy of General Motors Proving Grounds, Milford, Mich.
10:00—Greetings from the president—H. C. Krause
10:10—Announcement of elections by Board of Directors
10:15—Report of business conditions during 1952 and outlook for 1953—a summary of reports of regional vice-presidents Presented by President H. C. Krause
10:30—Report of engineering director—A. T. Goldbeck
10:50—Report of field engineer—J. E. Gray
11:10—Report of administrative director—J. R. Boyd
11:30—Address of particular interest to salesmen—Harry Bowser, director of sales education, Sloane-Blabon Corp., New York, N. Y.
12:00—Adjournment
12:30 p.m.—Greeting Luncheon
Luncheon Address—"Watch Yourself Go By"—Milton Bacon, philosopher, and humorist

Afternoon Session
Operating Men and Equipment Manufacturers

2:30—"Heated Screens—Their Design, Application, and Performance"—John V. Owens, vice-president, Eastern Rock Products, Inc., Utica, N. Y.
3:00—Discussion
3:20—"Mechanics of Establishing and Operating a Good Safety Program in a Small Operation"—T. W. Jones, production manager, New Haven Trap Rock Company, New Haven, Conn.
3:50—Discussion
4:10—"Recent Practical Developments in the Field of Delay (Quarry) Blasting"—Dr. L. Don Leet, associate professor of seismology, Harvard University, Cambridge, Mass.
4:40—Discussion
5:00—Adjournment

Evening

6:30—8:30—Cocktail Party—Buffet Dinner

TUESDAY, FEBRUARY 3

8:30 a.m.—5:30 p.m.—Registration

Morning Session

9:30—"The Open Road"—Sound Color Moving Picture through courtesy of Bethlehem Steel Company, Bethlehem, Pa.
10:00—N.C.S.A. committee reports
10:30—Report on percentage depletion—Russel Rarey, chairman, N.C.S.A. Percentage Depletion Committee
10:50—Discussion
11:00—"Modern Construction of Pavement Bases With Crushed Stone"—Charles E. Proudley, chief materials and test engineer, North Carolina State Highway and Public Works Commission, Raleigh, N. C. (This talk will be illustrated by slides and will be followed by a color moving picture demonstrating construction methods.)
12:00—Adjournment
12:30—Manufacturers' Division Luncheon
Annual Business Meeting
(For members of the Manufacturers' Division only)

Afternoon Session

2:30—Address by Representative from Gall, Lane and Howe, Washington, D. C., general counsel, National Crushed Stone Association
2:50—Discussion
3:00—"Application of the Percentage Depletion Regulations to the Crushed Stone Industry"—by a representative of the Natural Resources Division, Bureau of Internal Revenue, Washington, D. C.
3:30—"Employer-Employee Relations"—L. R. Boulware, vice-president in charge of employee relations, General Electric Company, Schenectady, N. Y.
4:00—Discussion
4:30—Adjournment

Evening

6:30—Meeting of Accident Prevention Committee (Dinner)

WEDNESDAY, FEBRUARY 4

8:00 A.M.-5:30 P.M.—Registration

Morning Session
Operating Men and Equipment Manufacturers

8:30—"Gunning the Flyways"—Sound Color Moving Picture through courtesy of Remington Arms Co., Inc., Bridgeport, Conn.
9:00-12:00—Operating Problems

1. Pictorial presentations of quarry operations by slides and moving pictures
2. "Churn Drilling vs. Rotary Drilling"
   a. Churn drilling—James H. Grove Jr., manager, M. J. Grove Lime Co., Frederick, Md.
   b. Rotary drilling—E. A. Heise, superintendent, Columbia Quarry Co., St. Louis, Mo.
3. Further pictorial presentations of quarry operations by slides and moving pictures

12:00—Adjournment
12:30—General Luncheon
Luncheon address—Clayton Rand, editor, author, and columnist, Gulfport, Miss.
Presentation of N.C.S.A. safety awards—C. A. Gustafson, chairman, N.C.S.A. Accident Prevention Committee, superintendent, Callanan Road Improvement Co., South Bethlehem, N. Y.

Afternoon Session

3:00—"Project—Adequate Roads"—Arthur C. Butler, secretary, National P.A.R. Committee, Washington, D. C.
3:30—Discussion
4:00—"The Trend Toward Throughway Construction"—B. D. Tallamy, superintendent, New York Department of Public Works, Albany, N. Y.
4:30—Adjournment

Evening

6:00—Reception
7:00—Banquet
Banquet Address—Cookie Stinnett, humorist-raconteur

## 1951 Sulphur Output Rises—Lower Sales Reflect Shortage

During 1951 the sulphur industry was primarily concerned with solving the shortage problem that had developed in the previous year. Production of Frasch sulphur increased to a record 5,278,249 long tons—2 percent more than in 1950. Sales, however, were lower than in the previous year because producers' stocks had been reduced to such a low point that further drafts upon them were considered to be unwise. During the year stocks in producers' hands increased 7 percent.

Domestic production of pyrites increased during 1951 as did the output of the various byproduct forms such as smelter acid, recovered sulphur, hydrogen sulphide and sulphur dioxide. Pyrite increased to 9 percent; smelter acid, 11 percent; and other byproduct sulphur compounds, 42 percent. Total sulphur production in all forms increased from 5,986,482 long tons in 1950 to 6,196,859 in 1951.

International trade in sulphur continued to be an important factor. Foreign demand was greater than United States sources could supply, and exports declined from 1,478,522 long tons in 1950 to 1,311,817 in 1951.

The year was particularly noteworthy for the vigorous production expansion programs that were initiated both in the United States and abroad. Progress was made on the development of several new domes and a large number of sulphur recovery plants, particularly for the treatment of petroleum gases. A number of new projects were also in progress which would increase the utilization of pyrites, smelter acid, and other sulphur raw materials. As a result of these development programs, it is anticipated that total output of sulphur will increase considerably in 1953 and 1954.

## Fire Dept. and Quarry Crane Rescue Worker from Hopper

The fire department and a big crane teamed up recently in Racine, Wis., to effect an unusual rescue act. At the Consumer Company's quarry north of Racine Glenn Olson was working on a hopper wall about 40 ft. above the ground when he fell into the hopper and sustained a fractured leg and neck injury.

Fire department members used a crane with a 60-ft. boom and lowered one of their men and a stretcher into the hopper. The injured man was placed on the stretcher, and the two men rode up and out to safety.

# N.S.G.A.-N.R.M.C.A. Convention Program

## Fairmont Hotel, San Francisco, Feb. 23-25

MONDAY, FEBRUARY 23

Convention events will begin with a meeting of the two boards of directors at the Fairmont, following an 8:30 breakfast. The convention will be formally opened at 2 p.m. with an address by Albert R. Shiely, president of N.S.G.A. Richard K. Humphries, president of N.R.M.C.A., will be the second speaker. Also on the program for Monday will be Frank B. Durkee, director of publ.c works, State of California, who will speak on his work for the state. The last speaker on Monday will be Vincent P. Ahearn, executive secretary for both associations.

TUESDAY, FEBRUARY 24

At the joint session on Tuesday morning Stanton Walker will present his annual report. He will be followed by J. R. Gilbert, U. S. Corps of Engineers, who will speak on the topic *Aggregate and Concrete Specifications*. Louis B. Lundborg, vice-president, the Bank of America, San Francisco, will be the speaker at the joint luncheon on Tuesday.

N.S.G.A. will have a separate operating session in the afternoon. There will be a discussion of heavy-media plants and tests. This will be an informal consideration of production and specification problems peculiar to California. A representative of the Department of Public Works will participate. There will also be a joint session on problems of labor relations, with industry executives taking part. Also scheduled for Tuesday afternoon is a joint session on percentage depletion, with J. Rutledge Hill, chairman of the N.S.G.A. committee on percentage depletion, and John T. Sapienza, N.S.G.A. tax counsel, leading the discussion. The final discussion listed for Tuesday is a round-table on depreciation practices in the sand-and-gravel and ready-mixed concrete industries.

WEDNESDAY, FEBRUARY 25

This day will be devoted to an all-day field trip. Members will tour the Eliot plant of Pacific Coast Aggregates and the Radum plant of the Kaiser Company. Busses will leave the Fairmont at 9 a.m. and return about 5 p.m. Lunch will be served aboard the busses. Ready-mixed concrete plants in the open area will also be visited.

THURSDAY, FEBRUARY 25

In the Thursday morning joint session Vincent Ahearn will present his annual report. The only other feature for this session will be a round-table discussion of merchandising practices in the ready-mix and sand-and-gravel industries.

Separate sessions will be held on Thursday afternoon. Officers will be elected and safety trophies will be awarded. At the N.R.M.C.A. session Stanton Walker will discuss the truck mixer tests which he conducted at the University of Maryland.

Also slated for discussion at some time during the convention are the following: the group insurance program of N.R.M.C.A.; the use of industrial radio facilities; and price, wage, and other controls.

ENTERTAINMENT

There will be no evening functions, as it was felt that members and their wives would prefer to make their own evening plans for their stay in San Francisco. A hospitality room will be open from 5 to 7:30 p.m. each evening at the Fairmont.

Plans have been made by the Rock Sand and Gravel Producers Association of Northern California and the Northern California Ready Mixed Concrete Association for the entertainment of the ladies. These two organizations will be hosts to the ladies at a luncheon to be given in the Garden Court of the Palace Hotel on Monday, February 23. The entertainment feature will be Paul Speegle's impressions of the city, entitled *I Love San Francisco*. After the luncheon the ladies will tour the city in busses.

On Tuesday the ladies are invited (by ticket) to attend the joint luncheon of the two associations. Tours of the Bay Area will be arranged for those wishing them on Wednesday. Thursday's special event for the ladies will be a coffee hour at the St. Francis Hotel (9:30 a.m.), followed by a shopping tour.

A post-convention trip to the Monterey Bay area will be arranged for a limited number. Reservations for this tour must be made in advance.

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## Lime Industry Survey Covering Forty Years Compiled by Mines Bureau

In contrast to conditions 40 years ago when the chief use of lime was for building purposes, more than 67 percent of all the lime produced in the United States now goes into chemical and manufacturing processes, while only 27 percent is used in the building industry, according to a U.S. Bureau of Mines survey of the lime industry issued by Secretary of the Interior Oscar L. Chapman. The remaining 6 percent of current production is used for agricultural purposes.

Shortly after the turn of the century—about 1910—there were 1,073 lime plants producing 3,500,000 tons, the report shows. Based on the 1950 figures of 40 years later, only 168 plants were producing 7,500,000 tons of lime.

The Bureau's survey draws together diverse information about lime, pointing out that as an essential raw material for industrial uses, lime has become one of the most widely used chemical agents in the industrial world, entering directly into the manufacture of hundreds of articles—from glass to disinfectants.

Based on a study conducted by Oliver Bowles, consulting commodity specialist for the Bureau of Mines, the report takes into account the history of the lime industry, its raw materials, its distribution in the United States, methods of quarrying, production and marketing factors, and uses.

Lime is used basically in the removal of phosphorus and other impurities in the metallurgical industries, especially in steel making. Chemically, lime is important in the manufacture of paper, glass, sugar, paints, synthetic rubber, bleachings, and in leather processing. In the building trade it is used in mortar, masonry cement, plaster, concrete, natural cement, artificial stone and, more recently, in road stabilization.

In agriculture, where lime plays a comparatively smaller role, it is applied as a fertilizer and used in insecticides. For example, insecticides containing lime can be sprayed on crops or spread on dry. It acts as a deterrent to the cotton boll weevil, potato bug, and tobacco worm, and is used in a fungicide for fruit trees.

Historically, lime is one of the most ancient of raw materials, as evidenced in the pyramids and later in Roman kilns used for burning. In fact, the type of kiln used for burning limestone showed little change for centuries. The rotary kiln is now used extensively for burning lime; but not until the beginning of the twentieth century was "hydrated lime" developed, more recently followed by the introduction of pulverized "quicklime."

The survey discloses that limestone deposits are found in every state and that they are presently being utilized locally except in Delaware, New Hampshire, and North Dakota. New England limestone is often classed as marble, owing to its high crystalline properties, whereas that found in the Shenandoah Valley and in the other valleys of the Blue Ridge Mountains is a massive variety of great commercial value for lime-making.

The principal sources of commercial lime are limestone, marble, dolomite, and shell deposits—all of which contain varying proportions of calcium and magnesium carbonates. The most valuable raw material is limestone, calcium-carbonate, 100 lb. of which, when pure, will yield 56 lbs. of commercial lime after processing. Fortunately, this variety is the most abundant, according to the report.

The author concludes that the main factors to be considered in locating a lime plant are quality and extent of raw materials, conditions of quarrying, fuel supply, market proximity, and transport facilities. Although limestone deposits are widely distributed, only a relatively small number are suitable for manufacturing lime.

A free copy of Information Circular 7651 *The Lime Industry*, may be obtained from the Bureau of Mines, Publication Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pa.

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Immediately adjacent to the former storage facilities of International Minerals and Chemical Corp. at Carlsbad, N. M., progress is going forward rapidly on preparations for a new $875,000 building which will contain 15,000 more square feet of floorspace than the present one. The 150- by 500-ft. structure will increase the company's storage capacity by more than two-thirds.

# SMIDTH

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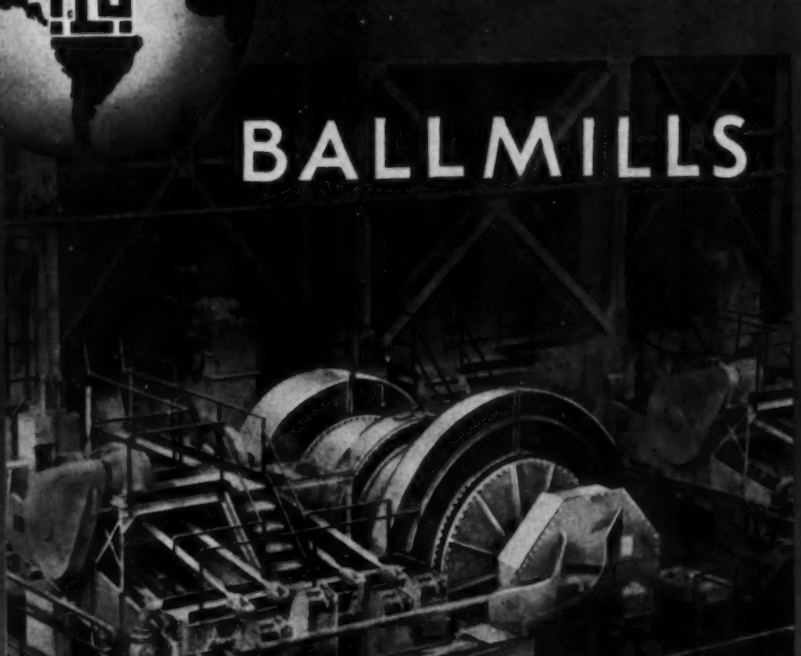

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# Kyanite Production

## *South Carolina firm completes tune-up job on quarry and plant facilities*

ON THE SPOT REPORT

ABOUT three years ago we published an initial report* on the kyanite processing facilities of Commercialores, Inc., at Clover, S. C. At that time the company had been in full-scale production for about a year, but a series of bottlenecks at various points in the flow sheet had kept output well below the 1,000 tons per month for which the plant was designed.

By WILLIAM M. AVERY

On a more recent visit to the property we learned from A. R. Eckel, president of Commercialores, that the bottlenecks have been patiently tracked down and eliminated one by one, and that as a result output is considerably higher and quality control far more uniform than was the case when our original article was published. Actually none of the changes could be described as major, but collectively they seem to have had much the same effect as an expert tune-up job often has on a balky automobile engine.

Secondary drilling constituted a somewhat serious bottleneck in the mining operation. Although the ore doesn't test particularly high on the Brinell scale, it is extremely tough, and the rate of drilling with jackhammers and carbide bits averages around 4 f.p.h. Moreover, the hill formation, an irregular lens of quartz-kyanite schist with a dip of about 80 deg., produces considerable quantities of oversize, regardless of what technique is used in primary blasting; and yet the extreme toughness of the material makes it economically desirable to effect as much reduction as possible with dynamite.

Jet-piercing with a hand-held 5-ft. long blowpipe has gone a long way toward solving the problem. This technique consists of directing against the ore surface a jet of flame produced by burning kerosene and oxygen in a special blowpipe developed by Linde Air Products Company. The rock spalls rapidly in the path of the flame, and the pressure of the burning gases forces the particles out of the hole. Secondary drilling in this manner shows a yield of around 40 ft. of hole per hour, or approximately ten times the average rate for conventional drilling.

In this particular formation jet-piercing is clearly favored by the high silica content (around 65 percent) of the rock. Since the silica expands readily in the path of the flame, the tough kyanite inclusions are chipped away at a rapid rate. The company has fitted a standard two-wheel trailer to carry all of the

*See Brunenkant, Edward J., *Kyanite Exploitation*, PIT AND QUARRY, July, 1949, p. 80.

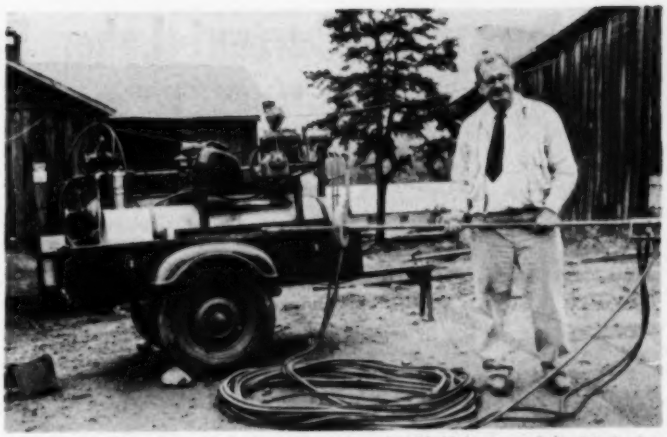
• An aerial view of the kyanite mining operations of Commercialores, Inc., at Clover, S.C. The hill deposit at the right is an irregular lens formation of quartz-kyanite schist which assays about 30 percent kyanite.

equipment and materials required by the process. In addition to the kerosene and oxygen used for the high-temperature flame, water is required as a coolant for the burner nozzle.

Jet-piercing has also been used to a limited extent for primary drilling at Clover, but its advantages are not so conspicuous in this operation as in secondary drilling. Seams of iron oxide encountered in the formation appear to act as a flux which causes the silica to melt rather than to spall. Officials of the company believe that on secondary drilling the jet-piercing technique has also shown important safety advantages over jackhammer drilling.

Right from the start there was difficulty in processing sufficient ore to feed the flotation circuit to capacity, at least part of this difficulty resulting from inability to crush the rock small enough before it was fed to the rod mill. The original three-stage crushing circuit consisted of a 24- by 36-in. primary jaw, a 3-ft. gyratory, and a set of rolls. With 1½- to 2-in. feed the rolls would not deliver material of the required size, so they were replaced in the circuit by a No. 636 Type R Allis-Chalmers Hydrocone crusher. This unit receives a 3-in. rock from the gyratory and reduces it in one pass to the ½- to ¾-in. range desired. With this finer feed, rod mill output showed some increase, but it was found necessary to effect a further increase in milling capacity by installing a new 4- by 8-ft. Kennedy-VanSaun rod mill. This new mill was placed in closed circuit with screen oversize—

(*Continued on page* 98.)

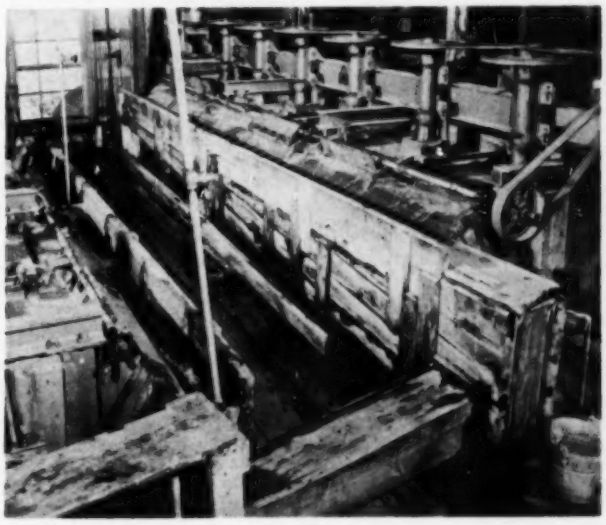


• A. R. Eckel, president of the company, with a hand-held lance used for jet-piercing. The trailer at the left carries oxygen, kerosene, and water used in the process.

• The formation of the ore body permits open quarry recovery, using conventional equipment and methods for all operations except secondary drilling.

• Right: Concentrate from six rougher flotation cells at the right flows by gravity to the cleaner and recleaner cells at the left. These are all acid-type cells.

• Below: Among the units of equipment which have been installed to bring the output of the various departments into balance is this 5-roll magnetic separator.



# Report on Current Labor Developments

## N.L.R.B. Rules against Slowdowns

IN a precedent-making decision, the National Labor Relations Board ruled unanimously that an employer was not required to bargain during a slowdown. In this case the union tried to strengthen its bargaining position by directing the employees to withhold incentive production and overtime work. Because the employer immediately broke off negotiations and refused to resume until the union and the employees had shown that the production of the plant was back to normal, he was accused of the unfair labor practice of refusal to bargain. The N.L.R.B., however, dismissed the complaint. In doing so, it used some rather strong language.

The Board said, "It is well established that a slowdown is a form of concerted activity not protected by the Act. The vice of a slowdown derives in part from the attempted dictation by employees, through this conduct, of their own terms of employment. They are accepting compensation from their employer without giving him a regular return of work done. . . . The Union was unwilling to choose between working under the existing terms of employment and engaging in a total strike with the loss of wages and the risk of lawful replacement incident thereto. Instead it engaged in a harrassing tactic irreconcilable with the Act's requirements of reasoned discussion in a background of balanced bargaining relationships upon which good faith bargaining must rest. . . . In these circumstances, the Respondent (employer) was not required to indulge in the futile gesture of honoring the Union's request."

In its decision the N.L.R.B. made it very clear that the employer could have resorted to sanctions against its employees far more drastic than breaking off negotiations when it said, "Employer did not discharge any employees for participating in the slowdown, as it would have had a right to do under Board and court precedents."

### Shift Differentials

A report just issued by the Bureau of Labor Statistics shows that in manufacturing industry practically all of the unionized workers receive premium pay for work done on night shifts. Eighty-one percent of such workers are covered by contracts requiring shift differentials; most of the others are in plants or industries which operate on a one-shift basis.

**By S. HERBERT UNTERBERGER**

S. Herbert Unterberger & Co.
Industrial and Labor Economists
Washington, D.C. — Philadelphia, Pa.

Among unionized workers in nonmanufacturing industries (transportation, trade, construction, etc.), only 59 percent are covered by agreements with shift differentials.

Most of the workers covered by shift differentials receive a higher premium for the third than for the second shift. The night shift premiums are more frequently in the form of cents per hour than as a percent of the regular rate of pay. For the most part, cents-per-hour second-shift premiums range from 4 to 6 cents per hour and third shift premiums range from 6 to 10 cents per hour. The most frequent combination of second- and third-shift premiums are 4 and 6 cents, 5 and 10 cents and 6 and 9 cents. Most percentage premiums were 5 percent on the second shift and 7½ percent on the third shift; a few paid 10 percent on the third shift.

About one-third of the workers covered by shift differentials receive the same premiums on both the second and third shifts. Here most of the cents-per-hour premiums ran from 5 to 7 cents and the percentage premiums were generally 10 percent.

The report also pointed to the use of other methods for providing shift differentials. The most frequently used method required payment for the full number of hours, although the worker was only required to work somewhat shorter hours. For example, 8 hours are to be paid for, but only 7½ hours are to be worked.

### Employer Must Supply Data for Collective Bargaining

Ten years ago the first union won the first case charging an employer with an unfair labor practice because he refused to supply information from what the employer regarded to be his private records. In that case the union asked the company to furnish it with a list of employees in the bargaining unit and the current rate of pay, job classification, duties, and the wage history during two years for each employee.

Both the National Labor Relations Board and the courts ruled that upon request the employer had to supply such information. The court of appeals said, "We can conceive of no justification for a claim that such information is confidential."

In a more recent case under the Taft-Hartley Act, the courts reaffirmed this position and went even further by saying that the union was entitled to such information even if it could not prove its relevancy to the particular contract change sought.

Over the years the wage data which the employer is required to furnish has broadened considerably. For example, the N.L.R.B. ordered an employer to furnish the union "full information with respect to merit wage increases, including the number of such increases, the amount of such increases, and the standards employed in arriving at such increases". It required this even in a case where the contract gave the employer sole authority over the granting of merit increases.

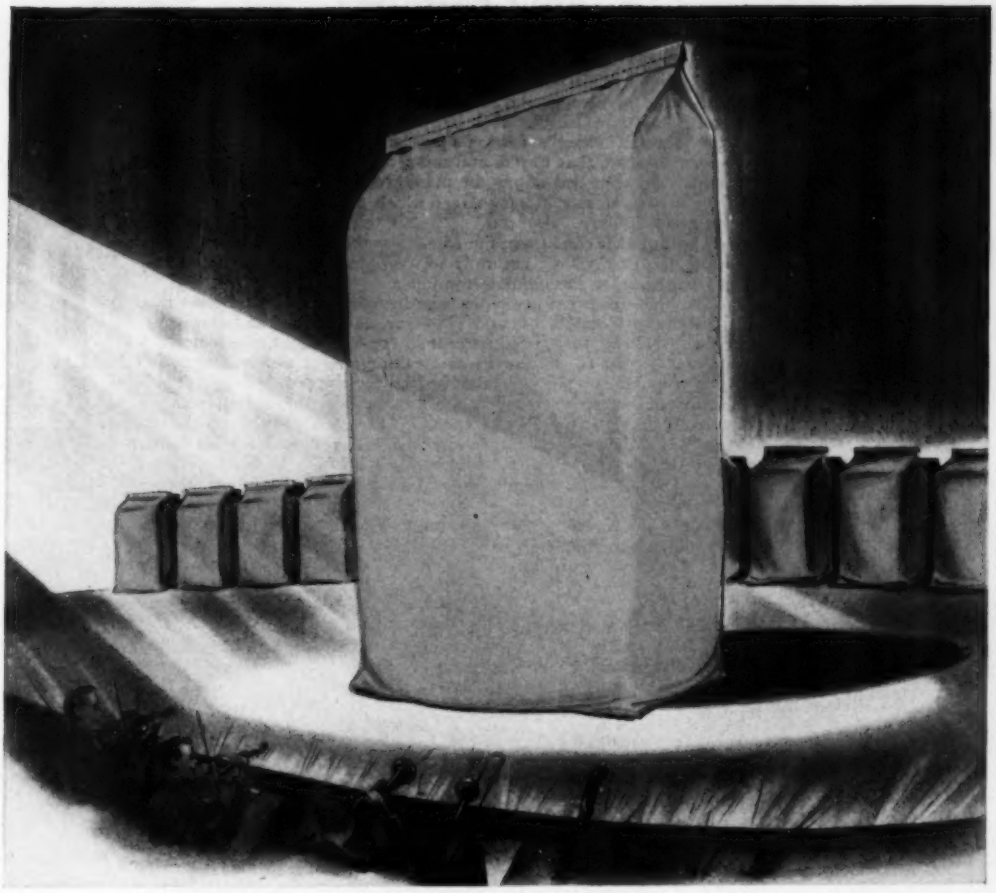
The only concession given to the employers in this matter is that they need not provide the information in the exact form requested. But the information must be supplied in a manner not so burdensome or time-consuming as to impede the process of bargaining.

The Board has tried to prevent unions from harrassing employers by asking for all kinds of unnecessary information. Where that appears to be the case, the General Counsel has refused to issue a complaint. On the other hand an employer who unnecessarily delays the furnishing of appropriate information runs the risk of being accused of bad faith bargaining.

In recent years unions have become increasingly interested in other matters beside wages. In that connection they have also sought information on so-called "fringe" matters. In various cases the Board has held that the employer is required to supply information on group insurance and pension plans, productivity, and transfers of employees.

When a union went further and asked for data on subcontracting, the N.L.R.B. stopped them. Here the Board could not find that such information was relevant to any legal right the union had.

Finally, when an employer argues that his wages or fringe benefits are up to or above the prevailing standard in his area or industry, if the union asks for it, the Board will require him to supply his proof. Thus, it is unwise to use confidential surveys in negotiations. The employer may find himself in the situation where observance of the law requires him to violate the confidence.



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# THE CEMENT MANUFACTURERS' MAJOR PROBLEM

By LESTER T. SUNDERLAND

Chairman of Board, Ash Grove Lime & Portland Cement Co.

NATURALLY, all producers are concerned with their major problems, and as a producer of cement, with a background of long experience, it is my humble opinion *the major problem* the cement industry must face in the near future will develop when a "sellers' market", which has prevailed over some years, *shall be transformed* to a "buyers' market". During that "sellers' market" period cement shortages have been so acute that buyers and users, in order to procure cement to carry on, were generally compelled to pay the published f.o.b. mill price for *cement without reference to freight rate disadvantages* which the *sellers had formerly*—prior to May 1948—*absorbed*.

Under these lush market conditions, the *ever-increasing freight rates* on cement have been *too largely lost sight of;* naturally so, perhaps, because the freight increases were *just passed* on to the ultimate consumer.

Since June 30, 1946, recurrent percentagewise increases in cement freight rates —to wit, I.C.C. Ex Parte 162, 166, 168 and 175—have resulted in the following:

1. A total gross increase of over 60 percent in cement freight rate scales.
2. An increase of over 60 percent in *competitive freight* disadvantages, which, prior to May, 1948, were absorbed by the shippers.
3. A reduction of over 60 percent in the geographical marketing areas of all cement shippers.

To illustrate: where *a shipper* was *formerly able and did absorb* his freight disadvantage on a shipment *to a point 200 miles* from his mill, he is now limited, under I.C.C. Scale III, *for the same absorption,* to a like shipment of *only 80 miles or less* from his mill.

To make this plain, I will show below a comparison of how much cement transportation the specified freight rates per 100 lb. will buy today *vs.* the same rates prior to June 30, 1946, under cement freight rate I.C.C. Scale III, which applies west of the Missouri river.

June 30, 1946, a *13 cent* rate bought *120 miles* of cement transportation;
Today a *13 cent* rate will buy *no* cement transportation at all.
June 30, 1946, a *14 cent* rate bought *150 miles* of cement transportation;
Today a *14 cent* rate will buy *no* cement transportation at all.
June 30, 1946, a *15 cent* rate bought *180 miles* of cement transportation;
Today a *15 cent* rate will buy only *5 miles* of cement transportation.
June 30, 1946, a *17 cent* rate bought *220 miles* of cement transportation;
Today a *17 cent* rate will buy only *35 miles* of cement transportation.
June 30, 1946, a *19 cent* rate bought *310 miles* of cement transportation;
Today a *19 cent* rate will buy only *60 miles* of cement transportation.
June 30, 1946, a *25 cent* rate bought *520 miles* of cement transportation;
Today a *25 cent* rate will buy only *150 miles* of cement transportation.
June 30, 1946, a *30 cent* rate bought *700 miles* of cement transportation;
Today a *30 cent* rate will buy only *220 miles* of cement transportation.
June 30, 1946, a *33 cent* rate bought *800 miles* of cement transportation;
Today a *33 cent* rate will buy only *300 miles* of cement transportation.

In other cement rate scale territories the situations are relatively the same (there are some *intra*state rates slightly below said scales, where state commissions declined to permit the *inter*state increases and where railroads have voluntarily made specific decreases to meet truck competition).

The above should make it clear to all cement manufacturers that when a *"buyers'* market" *supplants the* long continued *"sellers'* market", the shippers ("sellers") will discover that their former marketing areas have been drastically restricted, so that they will be confined to comparatively small marketing areas, throughout which the demand will not be sufficient to utilize the cement offered. When this condition develops, as it inevitably will, competition will compel cement producers again to absorb their freight disadvantages or forego the business.

The *answer* to *this problem* is a *readjustment* of cement rates and rate relationships, insofar as practicable, *to those in effect June 30, 1946,* since which time the present distorted cement freight rate structure has developed.

Inasmuch as the *freight* on cement is the *largest single element* of cost, it will be seen at once that *this* is the cement industry's *major problem* and unless and until it is solved, all cement mills, in proportion to their relation to their markets, will be seriously and some disastrously affected. *Some* shippers and far-seeing railroads *are alive* to this, but others are not.

As a result of the present distorted cement freight rate structure, a large and growing proportion of the cement movement east of the Mississippi river and on the Pacific Coast has been diverted to truck transportation, and that trend will increase unless the railroads, without undue delay, make a realistic readjustment that will preserve to their rails such tonnage as they have not already lost to the trucks.

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# *Missouri Limestone Producers Assn. Meeting Attracts Large Gathering*

southern ON THE SPOT report

THE Missouri Limestone Producers Association held its eighth annual meeting on December 9-10, 1952, at the Hotel Governor in Jefferson City, Mo. Approximately 200 members, associate members (principally equipment manufacturers and dealers), and guests attended, making this meeting the largest ever held. Guests included officials from the Missouri State Highway Department, Soil Conservation Service, Farm Bureau, Missouri Farm Association, Agricultural Extension Service, and other governmental agencies.

**By KENNETH A. GUTSCHICK**

The meeting was highlighted with talks given by executive members of the N.C.S.A. and N.A.L.I. and by state highway officials. The talks dealt with a number of subjects vital to limestone quarrymen, including the future of the Production and Marketing Administration, percentage depletion, the Missouri road building programs, workmen's compensation insurance rates, the lien law for agstone producers, and other timely matters.

The meeting began Tuesday evening with an informal session in which brief comments were given by Robert M. Koch, executive secretary, N.A.L.I., Washington; Horace C. Krause, president, N.C.S.A. and president of the Columbia Quarry Co., St. Louis; and J. E. Gray, field engineer, N.C.S.A., Washington.

J. E. Gray, field engineer, N.C.S.A., spoke on "Important Developments in the Crushed Stone Industry".

Paul N. Doll (right front), M.L.P.A. manager, registering Association members and guests, including F. H. Millen, president, Iowa Agricultural Limestone Assoc.; J. J. Griesemer, Billings; H. C. Krause, St. Louis; A. L. Richardson, Forest City; C. B. Cullor, Fort Scott; and C. Partin, Milan.

Percentage depletion was one of the main topics discussed during this first session. Mr. Krause reported that the joint committee of N.C.S.A. and N.A.L.I. on percentage depletion, of which he is a member, has a hearing with the Treasury Department in the latter part of December; at this time the committee planned, among other things, to clarify the use of the phrases "end use" and "fine pulverization" in the present depletion regulation. By this action the committee hoped to obtain a full 15 percent depletion allowance for agstone producers. In addition to percentage depletion, agricultural affairs in Washington were discussed, with Mr. Koch briefly presenting his viewpoint as to the future of the P.M.A. and its soil conservation program. Mr. Gray informed the evening group that the N.C.S.A. will hold a short course school in Washington, D. C., on January 7-10. He stated that a variety of technical subjects concerned with the production and use of crushed stone will be covered. One day will be devoted to an inspection of a government materials testing laboratory.

Mr. Gray, in addition, discussed various physical tests for crushed stone, including the abrasive test and the sodium sulphate soundness test, which is equivalent to a freezing-and-thawing test. He also spoke of the recent trend in the use of crusher run material instead of large-size stone for road base.

The M.L.P.A. business meeting held on Wednesday morning was featured by discussions of recent significant developments. It was reported that the Workmen's Compensation insurance rates for quarries N.O.C. in Missouri were reduced, effective December 1, 1952, from $5.43 to $4.51 per $100 payroll. This represents a considerable achievement on the part of general quarry-type operators, since all other classifications involving quarrying (including lime manufacturing, cement quarrying, and truck drivers), showed increased insurance rates, with some increases ranging as much as 54c. This latest 92-cent decrease has meant a total reduction in the insurance rate of approximately $3 in the eight years that the M.L.P.A. has functioned.

H. Andrae, M.L.P.A. attorney; Ben P. Donnell, Valley Dolomite Corp., Bonne Terre, retiring board member; and Russell W. Hunt, Southwest Lime Co., Neosho, newly-elected president of M.L.P.A.

Joseph J. Griesemer, board member from Billings; Robert M. Koch, executive secretary, N.A.L.I.; Carl Partin, secretary-treasurer, M.L.P.A. from Milan; and Walter Andrews, Glasgow Quarries, Inc., Glasgow.

New-elected board members are Merle M. Green, Carrollton; A. L. Richardson, Gordon Quarries Co., Forest City; and Joe Howard, Ozark.

It was further announced that a 6 percent reduction in the Missouri crushed stone freight rate was made effective November 15, 1952, thus making the crushed stone rate equal to the sand and gravel rate.

In anticipation of a truck-cover law, which is expected to be enacted by the Missouri legislature in 1953, the group discussed its pros and cons with the purpose of coming to a united stand on this issue. It was decided to have the board study the matter further and to draft a definite resolution upon which the members are to vote at a later date. It is believed that the Association will back the law, although it means an additional expense in operation.

Also discussed at the business meeting was a new mechanical lien bill for agstone, commercial fertilizer, and phosphate producers—a bill which is expected to be introduced in the Missouri legislature early in 1953. The measure would allow an agstone producer to put a lien on the property of the agstone buyer who does not complete payment within a year. This law is obviously needed since agstone can not be recovered in the event of a default in payment.

In a discussion on percentage depletion, it was brought out that agstone producers should use caution in requesting a full 15 percent depletion allowance, since the Treasury Department may allow only 10 percent in its final decision. In that event the producer would have to return, with 6 percent interest, the extra 5 percent allowance. It was also mentioned that the 1953 depletion return would be for the calendar year, rather than for the fiscal year.

The Association also heard a short talk given by Harlo Dunn, manager, Missouri Good Roads Association, who thanked the M.L.P.A. members for their support, financial and otherwise, of his organization.

During the luncheon meeting the first of two speeches was given by Robert M. Koch, executive secretary, N.A.L.I., who talked on *Significant Changes Expected in Agricultural Affairs in the Nation's Capital*. At the outset Mr. Koch explained that there is a wide diversity of opinions in Washington as to the future of the P.M.A. and that his viewpoint was strictly opinion, rather than fact. He first expressed belief that the P.M.A. and its payment-type conservation program would be continued in 1953 with but minor changes, and that the 1953 budget appropriation for soil conservation of approximately $300,000,000 would not be cut at all, or would be cut only slightly by the incoming Congress. He did feel, however, that the 1954 appropriation would be considerably less, corresponding to the general budget reduction expected then. Unlike many political observers, Mr. Koch thought there would be no great overhauling in Washington during the coming year.

Regarding anticipated changes in the P.M.A., the speaker felt that there would be a change in the organization's name and its officials, and that possibly the Soil Conservation Service and Agricultural Conservation Program would merge at the county level. He also expressed belief that the president-elect's brother, Milton Eisenhower, would be very influential in agricultural affairs, due to his experience in originally organizing the P.M.A.

Mr. Koch expressed uncertainty as to amount of conservation money that would be set aside for permanent conservation practices like ter-

Present M.L.P.A. board of directors include (left to right): Paul N. Doll, manager; K. Hall; A. R. Alvis, newly-elected vice-president; A. L. Richardson; H. C. Krause; R. W. Hunt, newly-elected president; M. M. Green; Carl Partin, re-elected secretary-treasurer; H. Andrae, attorney; J. J. Griesemer; and Joe Howard.

racing and the construction of dams and ponds and for annual practices like agstone, fertilizers, cover crops, etc. He felt that there should be more emphasis than in the past on the annual practices.

According to Mr. Koch, a recent N.A.L.I. farm survey revealed that 83 percent of the farmers polled in various states wanted the A.C.P. to continue and 68 percent of them wanted to have the program increased. State and federal farm bureau members were also polled, and they voted about the same.

The speaker also discussed the growing importance of the agstone industry in the United States. He pointed out that in 1936, when the A.C.P. began, agstone production totalled about 3,000,000 tons. Output rose to a peak of 30,000,000 tons in 1947, and is expected to be 28,000,000 tons in 1952.

Mr. Koch reported that soil acidity tests used to determine agstone requirements are sweeping the nation. He also pointed out that these tests should not be taken as the final word in determining the need for liming, since agstone serves not only to neutralize an acid soil but also for several other purposes.

In conclusion, Mr. Koch discussed the coming N.A.L.I. convention in Washington, which will be held during the presidential inauguration. He said that the convention program was an exceptionally good one, and that he hoped the M.L.P.A. would be as well represented as it had been in the past. He stated that the annual N.A.L.I. banquet would be attended by 150 congressmen.

In an address entitled *Important Developments in the Crushed Stone Industry*, J. E. Gray, field engineer, N.C.S.A., reviewed recent significant changes in production methods and crushed stone uses. Mr. Gray first discussed new primary drilling equipment and blasting techniques. He noted that the rotary drill equipped with the tri-cone bit and the percussion drill have come into wide use for drilling larger-sized primary blast holes; their main advantages, he pointed out, lies in the increased drilling rates over other types of drills. However, he also mentioned that the rotary drill is not too effective in a chert formation. Primary blasting has been improved with the advent of millisecond delay shooting, which results in better fragmentation and considerable reduction in vibration. For secondary breakage, the use of the drop ball and shaped charges has increased considerably. Mr. Gray pointed out that much of the success of the drop ball method depends on the skill of the crane operator. The shaped charge produces excellent fragmentation but also results in considerable noise.

The speaker also briefly described a new machine used in secondary drilling, in which the driller operates a jackhammer from a platform mounted at the end of 25-ft. boom. Since the boom can be maneuvered into a variety of positions, the machine has excellent adaptability to secondary work.

Mr. Gray also reported a slight tendency for quarry operators to move their primary crusher to the quarry floor; however, he admitted that the tendency is somewhat offset by the operators' use of large-size haulage units for transporting stone out of the quarry directly to the primary crusher. Mr. Gray also noted a trend in the greater use of surge piles, commenting that this trend is governed somewhat by the geographic location of the quarry. To clarify this statement Mr. Gray pointed out that Northern quarry operators feel that the surge pile is unnecessary during the winter months when digging is necessarily reduced, since that time is generally used for general repair work.

It was also pointed out that heated screens are becoming more widely used, particularly by producers of agstone. By eliminating blinding, the screen does an efficient job of sizing damp stone.

A growing trend toward the use of crusher run material in making a dense, non-drainage type of base for both portland cement and bituminous pavements was also cited. The crusher run being used varies between ¾-in. to 0 gradation and 2½-in. to 0 gradation, with 1½- or 2-in. top size proving to be the most suitable. In discussing this important use, Mr. Gray emphasized that for crusher run to be built of maximum density, it should consist of a *complete* gradation meeting specifications, should have the proper amount of water added, and should be properly rolled. In most cases, he said, the proper blend cannot be produced by single grinding and screening operations. He added that if these conditions are met, the crusher run base will almost set up in a manner similar to concrete. Mr. Gray mentioned that the newly-developed 100-ton super-compacter, which has been used on airstrip projects and the Pennsylvania Turnpike, is especially effective in producing a dense base course.

The afternoon session was concluded with a panel session in which Paul N. Doll acted as moderator. Panelists were J. E. Gray, N.C.S.A., and three Missouri state highway officials, including D. L. Robinson, Bureau of Materials and Tests; L. F. Beckett, Bureau of Supplementary Roads; and R. J. Ervin, Bureau of Maintenance. Although the topic was *Selective Quarrying*, most of the discussion centered on the prospective use of aggregates in Missouri road building programs. As an aid to M.L.P.A. members, the state highway officials outlined a detailed ten-year road building program, for which the state has appropriated $557,000,000 for the construction and repair of all types of roads. State highway maps showing prospective new major system road building for 1953, 1954, and 1955 were displayed.

The highway officials stated that the 1953 program calls for the use of 1,800,000 tons of aggregates for major-system roads, 80 percent of which will be crushed stone, and 880,000 tons of aggregate for county and supplemental roads. It was pointed out that the ten-year program is tentative, subject to such factors as availability of steel and cement, successful expediting of rights of way, etc.

Regarding selective quarrying, the participants urged that producers continue the practice of using their best stone for oil matte, portland cement concrete, and bituminous concrete road work, and that they save the poorer material, obtained from surface ledges and cherty zones, for surfacing or base work. This practice would allow continued maximum use of all quarried material. It was pointed out that although selective quarrying would entail higher initial costs, it would pay off in the long run.

The highway officials recommended that quarry operators have their surface material available early in the year, when the demand is necessarily great. They also stated that the highway department plans to let road building contracts as early as possible in 1953, so that the quarry operators could plan their production accordingly. The officials also expressed the belief that quality requirements for aggregates would probably be more stringent; consequently they urged quarry operators to avoid riding the limits of specifications.

New officers elected for 1953 by the board during the M.L.P.A. meeting were Russell W. Hunt, Southwest Lime Company, Neosho, for president, and Arthur R. Alvis,

*(Continued on page 100)*

# Rock Can Feed the Soil

By ROBERT RODALE
Executive Editor
"The Organic Farmer"

another P-Q exclusive

ROCK is becoming a symbol to the farmer of a new type of fertilizer—and even a new way of farming. In several important areas quarrymen are selling as soil amendments *rock dusts whose value to plants was hardly realized several years ago.*

These rocks are entirely distinct from common agstone — phosphate rock and limestone which have for centuries supplied nutrients to the soil. Instead of bringing to the soil quantities of calcium and phosphorous, these new agstones are valued mainly for their potash. However, in these days when concentrated fertilizers devoid of trace elements are used extensively, the minor element content of these new rock fertilizers does not take a "back seat."

Granite is found to be the first point of interest of the new industry, chiefly because it contains useful quantities of potash and because large quantities of dust have accumulated from the production of poultry grit and other granite products. Greensand (glauconite marl) is again being taken from deposits in New Jersey for use on the soil. Although quite large quantities of greensand were used as fertilizer several decades ago, in recent years the glauconite has been mined mainly for its value as a water-softening agent.

Numerous other rocks containing potash and trace elements in useful quantities are now being tested for their value to the soil. Some are being marketed on a small scale. These are basalt, leucite basalt, diabase (trap rock), Wyomingite, orendite, orendite pumice, illite, alunite, glauconite, feldspar, and rhyolite. The accompanying table shows the chemical composition of the different minerals being used for soil treatment.

### Look First at the Soil

To understand where raw rocks fit into the general fertilizer picture, you must look first at the soil itself and consider what has happened to it over the last century. Constant and heavy cropping has done many important things. The mineral-rich silt stores of the soil have been depleted. (And it is the non-quartz silt fraction of the soil that is the soil's reserve of fertility, a reserve which rock fertilizers tend to rebuild.) The humus content of the soil has dropped from an average of 4 to 1½ percent over the last century. The basic structure and tilth of the soil has gradually disintegrated, as is evidenced by increasing erosion. Fertilizer applications have not stopped this degeneration of the soil because—for reasons of immediate economic gain—they have been designed primarily to feed the plant and not the soil.

Solubility is the primary point of difference between the millions of tons of chemical fertilizers which are now used annually and the few thousand tons of rock sold by the rock fertilizer industry. Soluble fertilizers are intended to supply the crop with immediately available nutrients to carry it over the current season. These applications are usually repeated every year, and very often twice or three times a year. Chemical fertilizers do not replace the humus and silt of the soil as fast as they are used up, and thus the permanent sources of plant nutrients are diminished and crops are made more and more dependent on chemical applications. Per acre doses of chemical fertilizers are necessarily increasing year by year. One thousand pounds per acre is not an uncommon yearly application in some areas.

As can be seen, complete use of soluble fertilizers minimizes the natural plant feeding functions of the soil. If carried to extremes, the soil becomes merely a medium to hold

New Jersey greensand deposits yield valuable plant food.

Greensand being taken from pits owned by National Soil Conservation, Inc. This glauconite marl contains about 7 percent potash, and is a good natural fertilizer.

plants upright, while crop feeding is taken care of by the farmer making his rounds with the fertilizer spreader. Fortunately, this rarely happens, as some long-term fertility is almost always supplied by decaying crop residues, manuring, or the growing of green manure crops. However, the effect of the trend toward feeding the plant and not the soil is clearly evidenced by the fact that chemical fertilizer applications have increased eight times over the last 50 years, while crop yields per acre have increased only 10 to 20 percent.

Another point to note is that in making plant food soluble certain substances are introduced which are strangers to a healthy soil. For example, the common chemical fertilizer muriate of potash contains liberal quantities of chlorine. The build-up of chlorine in tobacco soils in particular has caused reduced crop quality. Tobacco grown on such soil has a low burn quality. Superphosphate carries with it quantities of sulphur, which acidifies the soil and causes undesirable types of sulphur-reducing bacteria to multiply.

And not the least important defect of soluble fertilizers is that by presenting to the plant liberal quantities of one or two elements, they throw its appetite off balance and minimize its desire and ability to take up other elements which are also needed.

Of course, the chemical fertilizer industry is probably a permanent fixture on the American landscape, and it would be untruthful to say that artificial fertilizers have not contributed to increased crop production. However, their defects are becoming more serious as their use increases; and farmers and soil scientists are realizing that there is a place for the insoluble rock fertilizers whose main function is to build up the soil's fertility reserve.

### Why Insoluble Fertilizers?

Perhaps at first glance it seems that insoluble rocks would be of little value to the soil. (To be sure, many experts scoff at the "visionaries" who talk of using common rocks as fertilizer.) But the soil has ways of breaking down and weathering rocks to make them release their nutrients, as most quarrymen know. The acids produced by decaying organic matter in the soil and by the plant roots themselves unlock more plant nutrients from normal soil in a year than are usually supplied by fertilizers.

Experimental work by the state colleges is beginning to focus attention on the logic of the rock fertilizer idea. The Connecticut Experiment Station, in an experiment conducted in 1947 by T. R. Swanback, showed that granite dust was an effective source of potash for tobacco and produced a crop of higher quality.

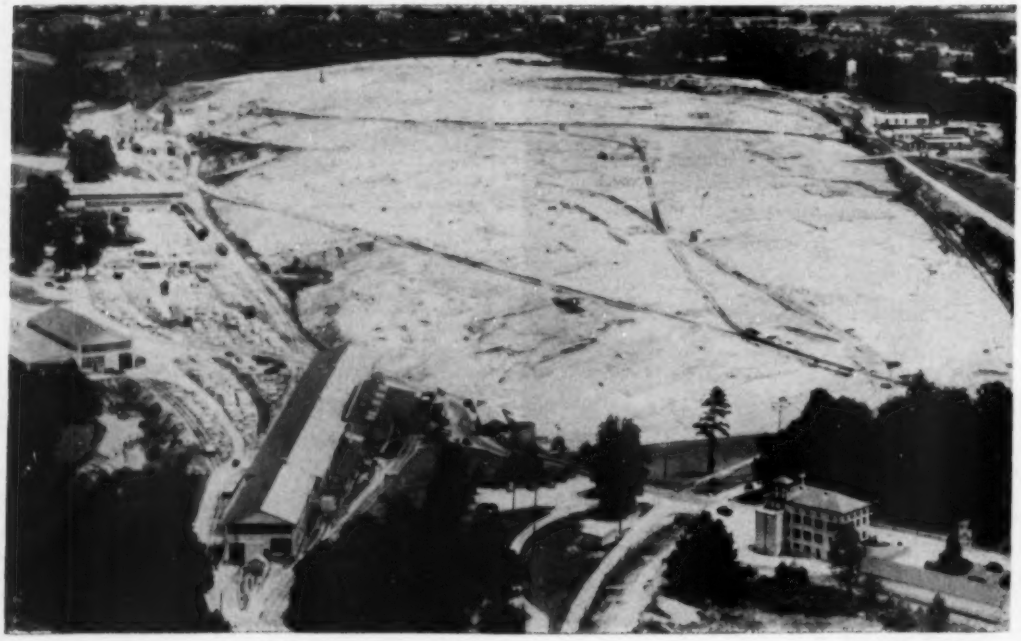
Here is an excerpt from the report of that experiment: "An application of two tons of stone meal per acre, combined with the usual amount of nitrogen and phosphoric acid, produced fully as good a yield and quality as a standard 6-3-6 formula.

"Better burn and lighter color of ash was obtained with stone meal, yet somewhat lower potash was deposited in the leaf tissue.

"With stone meal as one of the sources of potash in a tobacco fertilizer, the crop value was increased nearly 5 percent."

Work by the University of Missouri on a wide selection of rocks containing potash has shown that appreciable quantities of potash were released and that yields were increased. Professor E. R. Graham, who conducted the experiment, declared, "The results of this study demonstrated the significance of the reserve minerals already within the soil, and of the natural minerals which might be conveniently applied as helps in keeping up and building up the fertility and productivity of the soil."

The broad selection of trace elements in natural rocks is one of their primary advantages to the farmer. Some way must be found to insure a constant flow of the minor but badly needed elements into farm soil, and rock dusts seem to be an economical source. Concentrated soluble fertilizers are practically devoid



**The quarry of the North Carolina Granite Company at Mount Airy. Rock dust from this quarry has been marketed as fertilizer, and comprehensive tests of its effectiveness are now being made.**

of trace elements; and to try to make up these deficiencies by artificial means can lead to improper dosage if minute quantitative analyses are not made. It seems most advisable to make a shotgun application by spreading one or more of the rock dusts containing all the needed trace elements in their natural form.

Even though many rock dusts are ideal trace element fertilizers, another industry is taking the lead in insoluble trace element sales. The Ferro Corporation is selling a pulverized glass product which is rich in trace elements. It is now being used as a fertilizer filler and also as a straight fertilizer.

**Before: This sparse Pangola grass pasture on a Florida farm was fertilized by conventional means. The bare spots are signs of low fertility.**

**After: Treatment with granite dust and phosphate rock made this difference. Now it is one of the finest pastures in the area.**

**Rocks can be used as garden mulch. Moisture is conserved, and roots slowly tap the mineral reserves in the rock. The increase in the rate of growth of rock-mulched plants over unmulched plants is remarkable.**

### The Rocks Themselves

A consideration of rock phosphate will not be presented in this article because in both its raw and processed forms it is so well known. Actually, raw and untreated phosphate rock is the best example of the use of natural rock as a fertilizer, because of its high content of phosphorus and trace elements.

We are more concerned with the value and marketing of other rocks not now primarily used as fertilizer material. Granite leads the list for several reasons. Quantities of granite dust for which previously there has been no use are available at many granite quarries, particularly those making poultry grit. Granite contains from 1½ to 10 percent potash, with the average running about 2½ percent. Potash is an element vitally needed by farm crops. Granite also, like most rocks, contains a good assortment of trace elements.

Of prime importance is the fact that granite, of all the natural potash rocks, has been marketed most successfully. Two firms are now selling it on a considerable scale, and two others are feeling out the market. One of the first on the scene was the Keystone Granite Quarry of Zionsville, Pa., formerly engaged only in producing and selling poultry grit. Now fertilizer production is a great part of Henry Martin's Zionsville project. The dust is bagged and sold all over the East for approximately $18 a ton.

The North Carolina Granite Corporation of Mount Airy entered the dust-for-fertilizer business several years ago, but is now operating this division on a small scale until current tests have been completed.

The H. E. Fletcher Company of West Chelsford, Mass., is fortunate in owning deposits of granite containing as much as 10 percent potash. The operators have sold small quantities as a soil amendment. No merchandising campaign has as yet been launched, however.

Most active in the granite fertilizer field at the moment is the Davidson Granite Company of Lithonia, Ga., well known as the producers of "Stonemo" grit. Through aggressive leadership and faith in the value of their granite as a fertilizer the Davidson company has taken advantage of the good potash content of its rock, the high usage of fertilizer in its own area, and its network of over 2,000

(*Continued on page* 98.)

# WASHINGTON NEWS LETTER

## Construction Industry Outlook

ACCORDING to outlook estimates prepared jointly by the U.S. Department of Labor and the Department of Commerce, expenditures for new construction will continue to rise. In 1953 they are expected to reach a new peak of about $33,500,000,000 which is almost $1,200,000,000 above 1952—an increase of almost 4 percent. For businessmen who are a part of or related to the construction industry, this is probably the most significant story to come out of Washington recently.

It should be pointed out that these estimates are subject to some margin of error. In preparing them the following assumptions were made:

Business will remain good at least in the early part of the year.

Materials will be plentiful.

The limited controls in force will not interrupt construction operations.

The labor supply will be adequate.

Costs will remain relatively stable.

Although overall construction expenditures are expected to rise, not every type of construction will follow the same pattern. The detailed estimates are as shown below:

### Construction Due to Fall

The principal type of construction which is expected to fall off in 1953 is private industrial construction. This is expected to drop by $639,000,000, or 28 percent below the 1952 peak. This reduction will take practically no one by surprise. It results primarily from the fact that defense plant expansion programs, begun shortly after the Korean outbreak and encouraged by accelerated amortization privileges, are being completed.

The next most important decline will be in public housing because the appropriations have been severely curtailed. Hospital construction, too, will fall because appropriations for federal aid to state and local hospitals have been cut severely.

### Construction Due to Rise

The largest dollar increase is expected in residential construction, primarily home building. This is likely to occur despite the fact that housing starts are expected to decline in 1953. It will occur primarily because of the carry-over of residential construction started in 1952 which will not be completed until 1953. It should be noted that this large dollar increase is still a relatively small percentage increase.

The next largest increase will be found among public utilities, particularly gas and electric light and power. Although these utilities have expanded rapidly, they have not been able to keep up with the rapidly rising demand for their output—a demand started during the rapid industrial expansion of World War II, was augmented by the tremendous expansion in housing and industry in the post-war period, and was further increased by the post-Korea expansion in both the defense and civilian economies. Particular with respect to these two types of utilities, there is no margin of safety. Their facilities have been used up to and beyond their rated capacity. Their expansion is a real necessity and would probably proceed in some measure even if there were a slackening off in economic activity.

The construction of stores, office buildings, warehouses, and other commercial construction is expected to show the next largest increase. Commercial construction has generally been retarded in the last few years because of unavailability of materials or because of controls over them. This increase represents a catching-up. If there should be a falling off of business, it is among the increases least likely to occur.

Except for public housing and hospitals, most other types of public construction are expected to rise in 1953. The largest rise will be in highway construction. The trend toward toll-roads is responsible for a large part of this increase. Military and naval facilities will continue to be improved. Most of this construction will be finishing up projects begun in 1952. The still increasing need for classrooms is expected to create a virtual boom in school construction in 1953.

**EXPENDITURES for NEW CONSTRUCTION in CONTINENTAL UNITED STATES**
**Estimate for 1952 and Forecast for 1953**
**(Millions of dollars)**

| Type of Construction | 1952 | 1953 | Percent of Change | Dollar Change |
|---|---|---|---|---|
| Total new construction | $32,318 | $33,500 | + 3.7 | +1,182 |
| Private construction | 21,681 | 22,200 | + 2.4 | +519 |
| Residential building (non-farm) | 11,029 | 11,450 | + 3.8 | +421 |
| New dwelling units | 9,820 | 10,200 | + 3.9 | +380 |
| Additions and alterations | 1,026 | 1,050 | + 2.3 | + 24 |
| Non-housekeeping | 183 | 200 | + 9.3 | + 17 |
| Non-residential building (non-farm) | 4,945 | 4,600 | − 7.0 | −345 |
| Industrial | 2,289 | 1,650 | −27.9 | −639 |
| Commercial | 1,101 | 1,400 | +27.2 | +300 |
| Warehouses, office and loft buildings | 479 | 575 | +20.0 | + 96 |
| Stores, restaurants and garages | 622 | 825 | +32.6 | +203 |
| Other non-residential building | 1,555 | 1,550 | − 0.3 | − 5 |
| Religious | 397 | 425 | + 7.1 | + 28 |
| Educational | 354 | 375 | + 5.9 | + 21 |
| Social and recreational | 125 | 150 | +20.0 | + 25 |
| Hospital and institutional | 388 | 350 | − 9.8 | − 38 |
| Miscellaneous | 291 | 250 | −14.1 | − 41 |
| Farm construction | 1,700 | 1,700 | 0 | 0 |
| Public utilities | 3,925 | 4,350 | +10.8 | +425 |
| Railroads | 400 | 425 | + 6.3 | + 25 |
| Telephone and telegraph | 550 | 575 | + 4.5 | + 25 |
| Other public utilities | 2,975 | 3,350 | +12.6 | +375 |
| All other private | 82 | 100 | +22.0 | + 18 |
| Public construction | 10,637 | 11,300 | + 6.2 | +663 |
| Residential building | 643 | 575 | −10.6 | − 68 |
| Non-residential building | 6,104 | 6,250 | + 3.6 | +146 |
| Industrial | 1,649 | 1,700 | + 3.1 | +146 |
| Educational | 1,618 | 1,775 | + 9.7 | +157 |
| Hospital and institutional | 478 | 375 | −21.5 | −103 |
| Other non-residential building | 359 | 400 | +11.4 | + 41 |
| Military and naval facilities | 1,355 | 1,600 | +18.1 | +245 |
| Highways | 2,760 | 3,000 | + 9.5 | +260 |
| Sewer and water | 686 | 725 | + 5.7 | + 39 |
| Miscellaneous public-service enterprises | 202 | 200 | − 1.0 | − 2 |
| Conservation and development | 843 | 875 | + 3.8 | + 32 |
| All other public | 64 | 75 | +17.2 | + 11 |

### General Economic Outlook

The first assumption made in connection with the estimates of the outlook for construction was that business would remain good, at least through the early part of 1953. This assumption conforms with the best economic thinking around Washington. The difficulty is that this thinking has not always been accurate.

The principal question being asked is whether the feeling of confidence required to keep a high economic level going will survive the interregnum period. Until January 20, Washington and the rest of the country are in a period of drifting. When the new administration takes over, there will be a period of adjustment which may take a fairly long time. For many months it will be difficult to make any confident judgments. The danger is that judgments will be postponed and prosperity will decline.

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## Rock Can Feed the Soil

*(From page 95)*

dealers built up primarily for the sale of grit. Set up as The Potash Rock Corporation of America and selling their granite dust bagged under the trade name "Hybro-tite," this Georgia company has set a fast pace. It has adopted the aggressive merchandising policies that are necessary to sell large quantities of a product which is basically unknown to most of its potential users.

During its first year of selling fertilizer, now just being completed, the Davidson company slanted its selling message toward the sale of test quantities, urging purchasers to set up comparison plots using other potash fertilizers also. This approach seems to have worked well and has formed the foundation for future and continuing sales in larger unit quantities.

### The Other Rocks

As has been mentioned before, basalt, leucite basalt, diabase, Wyomingite, orendite, orendite pumice, illite, alunite, glauconite, feldspar, rhyolite, and possibly other rocks all can be used as potash fertilizers—not to mention those rocks which would be valuable to farmers only as sources of trace elements. Of this group of potash-bearing rocks, only glauconite and diabase are now being marketed as soil amendments.

National Soil Conservation, Inc., with offices in New York City, is a major supplier of glauconitic greensand. Carrying about 7 percent potash and selling for over $20 a ton, greensand is an effective and relatively popular fertilizer. The Kingston Trap Rock Company of Kingston, N. J., is planning a campaign to market quantities of diabase dust which it has on hand. Diabase is a relatively good source of potash, and contains an exceptional balance of minor nutrients.

Little research has been done to determine the actual value of rock dusts to the soil, and from the range of the subject and the number of still unanswered questions it can be seen that much must still be learned. For practically all our present knowledge we are indebted to the work and thought of Dr. W. D. Keller of the Geology Department of the University of Missouri. He, more than any other man, has worked to reveal to farmers, quarrymen, and agronomists the value of rocks as soil mineralizers. He was the guiding force behind the Missouri rock fertilizer project referred to above. That project has filled a void, but it has also shown that much more information is needed.

**Chemical Composition of Minerals Used as Soil Treatments**

| | Illite | Glauconite | Rhyolite | Granite | Wyomingite | Orendite Pumice | Feldspar | Orendite | Basalt | Alunite |
|---|---|---|---|---|---|---|---|---|---|---|
| Silica, $SiO_2$ | 51.47 | 45.71 | 72.88 | 67.33 | 50.94 | 53.61 | 63.19 | 50.09 | 43.77 | 0.69 |
| Alumina, $Al_2O_3$ | 19.43 | 7.21 | 11.49 | 18.51 | 13.14 | 12.96 | 22.32 | 12.76 | 16.23 | 36.40 |
| Ferric oxide, $Fe_2O_3$ | 6.58 | 22.95 | 3.46 | 1.78 | 5.51 | 4.50 | 0.81 | 5.15 | 18.52 | 0.38 |
| Titania, $TiO_2$ | 1.01 | 0.98 | 0.39 | 0.38 | 2.43 | 2.70 | 0.31 | 2.57 | 2.92 | 0.20 |
| Magnesium oxide, MgO | 1.75 | 2.75 | 0.67 | 0.41 | 7.08 | 5.45 | 0.07 | 7.31 | 3.69 | 0.64 |
| Calcium oxide, CaO | 1.23 | 1.80 | 0.40 | 2.63 | 6.80 | 3.73 | 0.35 | 6.13 | 8.13 | 0.30 |
| Potassium oxide, $K_2O$ | 4.66 | 8.25 | 8.45 | 3.96 | 9.19 | 10.76 | 7.47 | 9.69 | 2.39 | 8.95 |
| Sodium oxide, $Na_2O$ | 1.65 | 0.48 | 1.38 | 3.60 | 0.49 | 3.38 | 3.58 | 2.40 | 2.87 | 0.42 |
| Ignition loss above 105°C | 5.65 | 6.51 | 0.64 | 1.20 | 2.67 | 2.11 | 1.51 | 2.46 | None* | 15.83 |
| Moisture dried at 105°C. | 3.09 | 2.97 | 0.01 | 0.14 | 0.40 | 0.32 | 0.01 | 0.42 | 0.30 | 0.17 |
| Manganese oxide, $MnO_2$ | 0.12 | 0.01 | 0.12 | 0.12 | 0.35 | 0.24 | 0.24 | 0.35 | 0.47 | 0.01 |
| Sulphur as sulphur trioxide, $SO_3$ | 3.12 | 0.38 | ▼0.10 | ▼0.01 | ▼0.58 | 0.24 | 0.01 | 0.57 | 0.27 | 36.05 |

*From a report of the University of Missouri Experiment Station.

### The Challenge

The fact that many quarries have unsalable dust on hand that can be sold as fertilizer makes it quite easy for quarrymen to consider entering into competition with producers of standard fertilizers. However, even if no dust were on hand, the scope and importance of this potential market could not be ignored. Eventually, if general experience confirms theoretical conclusions and the results of relatively small tests, the total volume of rock sold for its plant nutrient value can be staggering. Much plant food is needed to feed this country's crops, and not nearly enough is being supplied by present methods.

One important fact must be remembered: that rock dust should be of at least 200-mesh if it is to release its plant food effectively. Coarser dust can be used, but it may hold on to its nutrients for quite a few years. Another point to consider is that state fertilizer laws will not allow rock dusts to be called fertilizers. They must be sold as "soil amendments". But that is not a serious handicap.

Quarrymen are always looking for new markets. The universal nature of rock makes it a versatile product. Here is a use for rock which can raise its value to our economy and industry and help to make sure that future generations will be well fed. It is now up to rock producers to make sure that necessary research is done, and farmers are convinced of the value of rock fertilizers.

## Kyanite Production

*(From page 85)*

the original 4- by 10-ft. Denver mill operating in open circuit on ore feed. Magnetic separator capacity has also been increased by the installation of a new 5-roll Dings unit. A Hardinge Counter-Current Classifier has been installed for washing and de-sliming before milling. A new Bucyrus-Erie Model 22-B shovel has been put in service in the mine.

Quality control has been placed on a more immediate basis by running heavy-media tests once an hour as a check on the entire flotation circuit. This, of course, is in addition to even more frequent checks (about once every half hour) on iron content.

In the original layout tailings were pumped to a settling area which was created by constructing a dam. Due to the steepness of the terrain and the lack of adequate space, this system was not entirely satisfactory. All solids are now removed from the tailings by means of a settling tank before the water is returned to the nearby creek. Although the return water is still somewhat muddy in appearance, it contains no material which can settle out in the stream. Solids are pumped away from the tank with a Wilfley pump. Since the material in the tailings pile is relatively coarse, water settles through it quite readily.

Because of the steady demand for its product as a valuable source of alumina in the refractory and ceramic industries, Commercialores has of necessity had to concentrate its efforts upon the solution of production problems. With these problems now under control, the company's management is keeping a watchful eye on new market possibilities. One of the most intriguing of these is the precision casting industry, in which a refractory material with the interlocking characteristics of kyanite crystals should find immediate acceptance.

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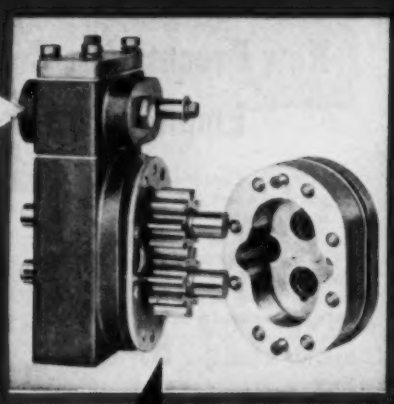
Ernest F. Goodner, president of the American Gilsonite Company, Salt Lake City, Utah, has announced that national sales offices were opened on December 1 at 1145 East Jersey Street, Elizabeth 2, N. J., under the direction of Aaron P. Dowler, general sales manager. American Gilsonite, which is owned by Standard Oil of California and Barber Oil Corporation, will continue to maintain headquarters in Salt Lake City.

# THE BIG DIFFERENCE *HERE*



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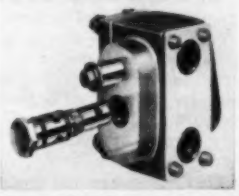

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# New Process For Cement Manufacture Employs Petroleum Distillate

IN the manufacture of portland cement, the wet process has numerous advantages, the most important of which is uniformity of kiln feed. This process also has numerous disadvantages, by far the most important being the large quantity of heat required for evaporating the water from the slurry. The dry process also has its advantages and disadvantages.

Some years ago an investigation was started by J. C. Witt, a consulting engineer of Chicago, with the object of finding a procedure combining the advantages of the wet and the dry processes. Study was based on such items as raw materials, fuels, plant equipment units, and conventional manufacturing processes.

After several months the investigation was almost abandoned. There was no suggestion in sight. During this preliminary period the utilization of water was taken for granted, and no particular attention was given to the nature of the liquid. Later, however, it was decided to make a critical study of water itself. Soon a fundamentally important and interesting fact was revealed. The advantages of the wet process are due to the presence of a mobile liquid—water. This facilitates the grinding, blending, pumping, and storing. Each of the disadvantages of the wet process can be traced to one or more of the physical and chemical properties of the liquid.

This concept provided a firm basis for the investigation. Evidently the next step was to search for some liquid other than water, in the presence of which raw materials could be ground. Some requirements for such a liquid were formulated as follows:

(1) To remain liquid over a long range of temperature.
(2) No chemical reactions with water or with the compounds present in cement raw materials, even at rather high temperatures.
(3) No deliquescence.
(4) Boiling point approximately 300-600 deg. F.
(5) Low latent heat of vaporization.
(6) Reasonable cost and availability.

A review of the properties of many non-aqueous liquids revealed that most of the liquids can be eliminated at once. However, a liquid was found that meets the above requirements. It is a petroleum distillate. Some quantitative and semi-quantitative tests indicated that the substitution of a distillate for water is

● J. C. Witt, who developed the new process employing petroleum distillate.

practicable. The liquid can be recovered almost completely by distillation (with or without preliminary treatment of the suspension) and the same supply can be used repeatedly, with no build up of undesirable elements, in contrast with the water suspension of the wet process. Also, any of the distillate remaining in the raw mix will burn in the kiln, thus contributing to the heat input.

An application for a patent was filed by Mr. Witt on April 14, 1948, and United States Patent 2,611,714 was issued on September 23, 1952.

It is evident that the process of this patent involves petroleum technology as well as cement technology. For that reason, when the "Sinclair Plan" was announced, the process was submitted. After a careful investigation it was accepted. Work on the process is under way in the Sinclair laboratories. The results so far obtained indicate many superiorities of the new process over the existing dry process and wet process.

Pilot plant runs remain to be accomplished, and special equipment units that may be found desirable must be designed. The indications are that a plant layout will consist very largely of units now on the market.

The new process has greater flexibility than either of the existing processes. Flow sheets in great variety may be devised by the designing engineer; and after a plant has been constructed, the superintendent has considerable choice in operation details.

The following procedure is suggested at present. Add the non-aqueous liquid to the proportioned raw materials as they enter the compartment mills or the tube mills, just as water is added, keeping the quantity at the minimum required for satisfactory slurry. Pump the slurry to two or more silos, and then to another silo, adjusting the composition as desired. Decant most of the liquid, distill off the remainder, and pump all the liquid to the supply tanks. Convey the dry mix to the kilns, operated as dry process kilns. Collected dust may be added to the slurry. Continuous stirring is not required.

Here are some of the inducements given by Mr. Witt for converting existing plants to the new process: *Dry plants* can now have the uniformity of product previously restricted to wet plants. *Wet plants* can retain all their present advantages, and at the same time greatly reduce fuel consumption per barrel and increase production. Of course, in new plants designed for the new process, all these advantages are combined.

So far, the new process has been described in relation to raw materials only. But it is applicable to clinker as well. Now, for the first time, according to Mr. Witt, the cement manufacturer can produce cement with the uniformity of a wet process, blend two or more types of finished cement to produce another type, and so on, within wide limits. He will be able to meet many of the increasing demands of cement users with less expense, less delay, and less inconvenience than ever before. While it is recommended that the process be applied to both raw mix *and* cement, it can be applied to either one separately.

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### Missouri Limestone Producers

(*From page* 92.)

Butler, for vice-president. Re-elected were Carl Partin as secretary-treasurer and Paul N. Doll as manager of the Association. Three new board members were also elected, including the following: A. L. Richardson, Gordon Quarries, Inc., Forest City; M. M. Green, Carrollton; and Joe Howard, Ozark.

The highly successful meeting was concluded Wednesday evening with the annual banquet. The highlight of the affair was an address by the famous humorist and philosopher Dave Livingston of Washington, Iowa, on the topic *Where Are We and Where Are We Headed?*

# This 'Dozer *Pays* its way

*A D2 Tractor with Cat No. 2S Bulldozer stockpiles shot sand at Cowell, Calif. Also shown is Mr. Charles Laws, the owner.*

ANY Caterpillar Bulldozer will keep busy and more than earn its keep on a sand-pit or quarry operation. This D2-No. 2S 'Dozer, owned by Charles Laws, of Concord, California, is no exception.

Smallest bulldozer unit in the Caterpillar line, the D2-No. 2S is built with the same rugged strength and powered by the same type of dependable Caterpillar Engine as its big brothers. That's why Mr. Laws bought it. He had had experience with Caterpillar track-type Tractors on a logging show and knew what they could do.

This particular unit is used for stockpiling shot sand and stripping light overburden. But the D2 'Dozer is an excellent tool for other jobs, such as feeding the loader and building access roads. It's a quick, sure-footed machine, easy to handle. And because it uses low-cost No. 2 furnace fuel without fouling, and stays on the job without tinkering, its operating economy is outstanding.

Your Caterpillar Dealer has a complete line of sturdy Cat Bulldozers, matched to all tractor sizes. He'll be glad to demonstrate the unit you need. And he'll back its long work life with reliable service and genuine Caterpillar parts. See him now.

**CATERPILLAR**

REG. U. S. PAT. OFF.

DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

**CATERPILLAR,** PEORIA, ILLINOIS

OHIO RIVER DREDGING COMPANY
INCORPORATED
DREDGING AND TOWING
HUNTINGTON 10, W. VA.
November 18, 1952

Thomas Foundries, Inc.,
Birmingham 1, Alabama.

Gentlemen:

We examined our pump on November 16, having operated constantly for practically a whole season. We were surprised to see that wear was negligible.

This pump replaced a pump of another manufacturer. To have pumped the same tonnage through the pump we replaced, would have required five impellers and two shells. We are gratified to state that for this period we have not replaced a part in your pump or lost an hour due to failure of your equipment.

Your cooperation and your interest and suggestions in the use of our Thomas Pump have been greatly appreciated.

Yours very truly,

OHIO RIVER DREDGING COMPANY,

C.V. Rawn

President.

# Mr. Rawn was SURPRISED to see that— "WEAR WAS NEGLIGIBLE" ON HIS 12" THOMAS DURABLE DREDGE PUMP

*Thomas Durable Dredge Pump*

No wonder! What happened to him would surprise you, too.

Mr. Rawn says the pump he formerly used in the same service, would have required . . .

**(1) Five new impellers,**
**(2) Two new shells, BUT . . .**
**(3) Thomas pump shows only "negligible wear".**
**(4) It's not in his letter above, but Mr. Rawn stated verbally that he believed his Thomas pump (including all parts), is good for another whole season, without repair.**

***For complete information about Thomas Pumps, write***

***THOMAS FOUNDRIES, INC., Birmingham, Ala.***

**IF YOU DO IT WITH SAND & GRAVEL PUMPS, YOU CAN DO IT BETTER WITH A "THOMAS"**

# Review and Forecast

**A special section summarizing conditions in and prospects for the pit-and-quarry industries**

WITH this January, 1953, Annual Review and Forecast Number, PIT AND QUARRY begins its 38th year of keeping the nonmetallic minerals industries informed on the important developments within and affecting them. For this issue we have again devoted a great deal of time and effort to obtaining the latest information, so that our readers could be advised of the status of their industries in 1952 and the prospects for 1953. Continuing uncertain world and national conditions make any efforts at predicting the future extremely hazardous, but we believe the following estimates will hold true, barring a radical change in the international situation.

We have assembled all available information from government bureaus and other recognized fact-finding bodies, from our own records and files, from correspondence, and from many other sources, and from hundreds of answers to questionnaires sent to producers throughout the country in order to get an accurate cross-section of information and opinions from all parts of the United States. Complete official reports on 1952 production, shipments, prices, etc., will not be available on any of these industries for months to come, but we believe that, with the help of these industries, we have obtained enough information to enable us to present a fairly accurate and complete picture of conditions in 1952 and of prospects for 1953.

**REVIEW** The incomplete information now available makes it evident that in 1952 the nonmetallic minerals industries covered by PIT AND QUARRY collectively had the biggest year in their history. This record was attained in spite of many handicaps such as strikes, car, material, fuel, and labor shortages, etc., and the fact that the products of many of these industries are used to a large extent for construction which was held down during the year by controls and the shortage of steel. In spite of everything, the dollar volume of new construction in 1952 set a new record of $32,320,000,000—an increase of $2,330,000,000 over 1951.

Industrial production, also judging from incomplete information, was apparently up in 1952, this in spite of the fact that the steel industry, one of the largest consumers of pit-and-quarry products, suffered a prolonged shutdown due to a 2-month strike, which also sharply cut down the output of many dependent industries.

The portland cement industry in 1952 for the sixth consecutive year set new all-time records in production, shipments, and the value of shipments. The price per barrel went up less than 1 percent during the year, much less than the increased cost of the fuel, labor, and materials going into its production. Bureau of Mines reports for the first 10 months of the year make it apparent that production was up about 1 percent and shipments about 3½ percent from the 1951 record highs, to 248,000,000 and 249,000,000 bbl., respectively. The total mill value of shipments was up about 3 percent to $635,000,000, for a new record.

No official figures are available on the production of sand and gravel, crushed stone, and other aggregates for even a part of the year. Fairly accurate information is available to us, however, from the results of a questionnaire which was sent to hundreds of established producers in all parts of the country. There is no doubt that, collectively, and in most cases individually, these industries set new records of production and value in 1952. The sand-and-gravel industry apparently produced about 400,000,000 tons, about 2 percent more than the 1951 all-time record. This includes both commercial and noncommercial production.

The crushed stone industry (including both commercial and noncommercial production and agricultural limestone, but excluding that used for cement and lime manufacture) produced about 294,000,000 tons in 1952, an increase of 4 percent over the 1951 record.

Due to the prolonged steel strike, which cut off raw material supplies for about 2 months during 1952, the slag industry apparently failed to set a new all-time record of production by only about 5 percent. Actual output is estimated at about 28,000,000 short tons.

The growth of the lightweight aggregates industry in recent years has been phenomenal, and this was again the case in 1952. Unfortunately there are as yet no accurate records of production, but from our own sources of information we estimate production in 1952 to have been about 26,000,000 cu. yd.

The information now available on the production of the other nonmetallic minerals industries in 1952 is even more incomplete than usual, but all indications point to a general increase in production over 1951. Of the four industries on which partial 1952 information is available, two showed increases and two decreases from 1951. Lime production is estimated at about 7,750,000 tons, a drop of 7 percent from the record 1951 level and second only to it.

Sulphur production in 1952 was apparently up about 1 percent, for a new record of about 5,300,000 tons; and the output of phosphate rock was up perhaps 5 percent, for a new record of about 11,300,000 tons. The domestic production of bauxite was probably down a few percent due to the replacement of domestic by imported supplies.

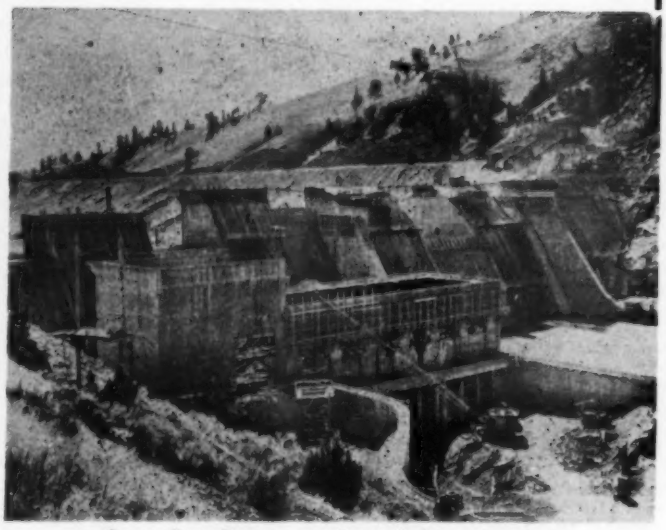
**FORECAST** In both the last two years we, along with others attempting to forecast conditions, erroneously predicted that business would fall off somewhat due largely to construction and material controls. The prospects for 1953, however, are much brighter than were those for 1951 and 1952, and it seems safe to predict that business in general and that in the pit-and-quarry industries in particular will improve somewhat.

# 1952 Sets Records In Dollar Volume

By E. E. GREEN

CONSTRUCTION activity in 1952 reached the largest dollar volume on record! And this boom, which was slowed during the year by materials controls, is expected to go on and reach new peaks in 1953! New construction in 1952 reached a total of $32,320,000,000—an increase of $2,330,000,000 over 1951, and a further increase of $1,000,000,000 is expected for this year. These figures are for new construction only. They do not reflect the vast amount of construction undertaken in making repairs and improvements and in general maintenance. The additional money spent in this way is conservatively estimated to be more than $8,500,000,000; so the total building business in 1952 was over $40,830,000,000 and is expected to be more than $42,000,000,000 in 1953!

A year ago predictions of a decline in total dollar volume were being made. These predictions proved to be wrong. These same sources are now predicting that the boom which was hampered by materials and credit restrictions last year will continue through 1953. The various forecasts indicate that increases in some types of building will offset declines in other types of construction. However, none of these predictions agree on where the increases and decreases will occur. One report expects a decline of 11 percent in housing and an increase of 8 percent in non-residential construction; another equally reliable source estimates that housing will increase nearly 4 percent and that non-residential building will decline about 7 percent. It is entirely possible that the declines may not occur. In that case the expected total increase of about 4 percent may well run much higher and produce a stupendous boom in construction activity. None of the authorities expect any reduction below 1952 levels in the total construction activity, just that the emphasis may shift from one type to another, but where the shifts will occur is very much in dispute.



Canyon Ferry Dam was a major project in reclamation.

All of the evidence now at hand indicates that 1953 will set new records in total construction. It will be another boom year!

**Housing** Home building again led all other types of construction in 1952 as in the last two years. Non-farm residential building was about $1,000,000,000 higher than in 1951 and accounted for about a third of all construction during the year, or more than $11,000,000,000 of new construction. Farm construction, which includes farm dwellings, was another $1,700,000,000. This was an increase of $500,000,000 over 1951, or more than 40 percent.

Construction of new homes did not reach the physical volume of 1950, which was the largest ever recorded. However, the number of new dwellings started during the year will exceed 1,100,000 units, an increase of about 10 percent over 1951 and the second largest year on record. As there is virtually the same percentage of increase in units built that occurred in dollar volume, it appears that there was little change in building costs during the year.

Public housing declined 25 percent from 1951. A further decline in this

The staff of PIT AND QUARRY extends its thanks to the following organizations for supplying the data used in the preparation of this review and forecast: The American Appraisal Company; F. W. Dodge Corporation; U. S. Department of Labor, Bureau of Labor Statistics; U. S. Department of the Interior, Bureau of Reclamation; U. S. Department of the Army; and the many state highway departments whose replies to our questionnaire are reprinted on the following pages.

field is expected. Increasing opposition to subsidized tax-free structures is becoming widespread. With economy being demanded from Congress, it would seem that there will be less money appropriated during the present session than in the last, and that government subsidies will decline, accelerating a swing away from this type of construction.

The housing picture during the year was mixed. A decline in activity that started in the last months of 1951 continued in the first two months of 1952. After that the boom got underway, and construction exceeded the previous year in every month except June. One of the interesting points is that the level of home construction did not show the wide fluctuations from month to month as it had in the previous years.

Housing in 1953 is expected to continue high. Federal agencies estimate that the field will show an increase of 3.6 percent. Other authorities feel that there will be declines of 4 to 11 percent. In view of the difficulties of gauging this market, it is not surprising to find this variation in opinion. It is quite possible that regional forecasts which predict declines of up to 11 percent and a national forecast of an increase of nearly 4 percent are both right. The shortage of housing has been more acute in some sections than in others, and the rate of building activity has likewise varied; so there may easily be a leveling off in one section of the country, or even in some towns, and a boom in others.

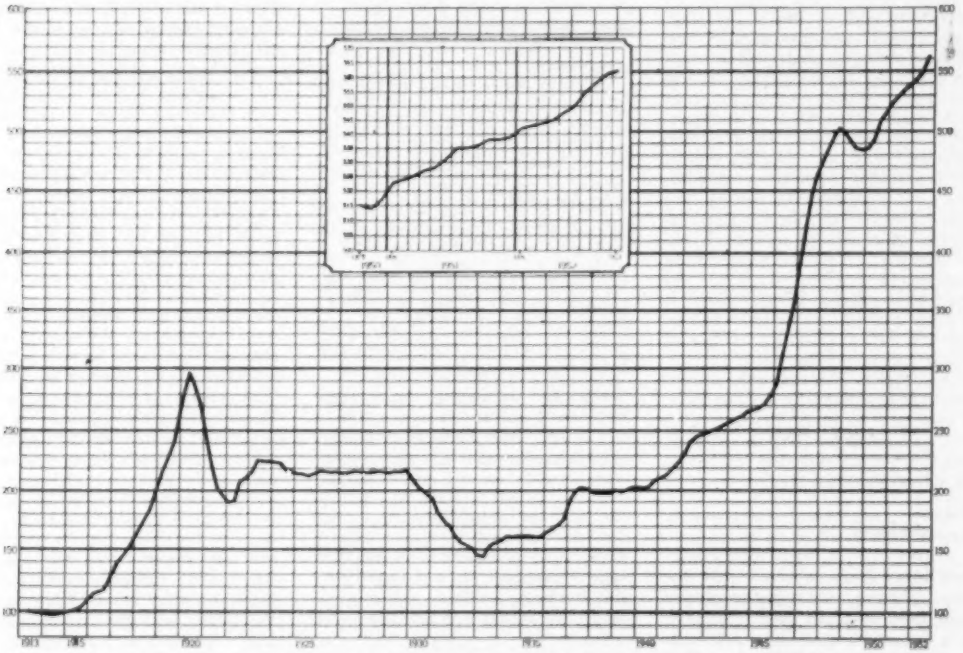
Another trend that is growing with rapidity is construction of entirely new towns and villages away from the big cities. This is, in part, the result of a decentralizing trend in industry. New plants are being located in areas where land and other facilities, such as water, raw material, and transportation are favorable, without too much regard to proximity of a labor force. Some companies have constructed entire towns for housing the personnel of new plants, and subdivisions and suburbs have sprung up near plant sites.

A large and vigorous trend in building new super-shopping areas in outlying parts of cities or in suburbs has developed considerably during the last year and is expected to continue. For instance, Chicago has just witnessed the completion of a multi-million dollar Evergreen Shopping Plaza on the outskirts of the city to the southwest. One in Skokie, to the northwest of the city, was recently completed, and others are being projected for suburbs to the north. Reports indicate that many cities in the East and South are experiencing similar developments. These will stimulate the movement of the population to suburban and semi-rural areas and should provide impetus for new construction in many localities.

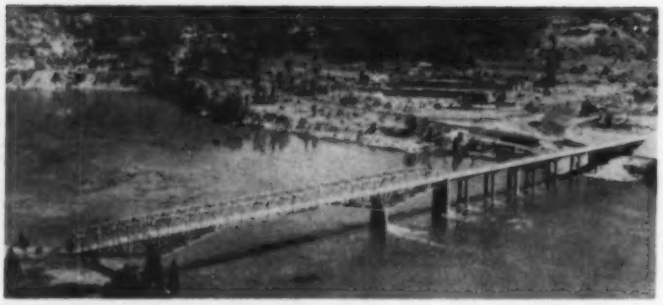
**Industrial Building** Factories and similar industrial construction reached a peak during 1952. The decline which was expected to occur in 1952 not only did not occur, but expenditures far exceeded the wildest guesses. It was predicted that defense plants would be largely completed during the year and that industry would slow up its expansion programs. The same predictions are being made again. Declines in industrial building are expected by virtually all authorities. It is believed that the $2,289,000,000 spent in 1952 will decline possibly as much as 27 percent in 1953.

**Commercial Building** This field is predicted to expand greatly in the new year. A great deal of construction has been de-

The American Appraisal Company's graph of typical construction costs in the United States.



NOTE — This index applies to construction only and does not include building fixture items such as plumbing, heating, lighting, sprinkler system, etc.; it is based on average costs under normal conditions with no allowance for overtime, premiums on materials, or special conditions. It is the composite of four types of buildings — frame, brick, concrete and steel — in 30 representative cities, and therefore should be used only as a trend as it is not applicable to specific buildings.



**The Northport Bridge over the Columbia River was completed. Many bridges were delayed by lack of steel.**

ferred as a result of credit and materials controls. With these being relaxed more and more, it seems that the backlog built up will provide for a large increase in the field. In spite of controls, commercial building—stores, offices, warehouses, etc.—reached $1,100,000,000 in 1952. This is expected to go to $1,400,000,000 in 1953.

**Public Utilities** The demand for electricity, telephones, and other utility services continued to press existing facilities, and expansion programs were being actively pushed in all areas. The trend to decentralization of cities mentioned in connection with housing plays an important part in utility construction. New plants, new suburbs, and outlying shopping centers all demand an expansion in the utilities serving the area. While modest increases were made in the fields of transportation and communication, the large increase was in electric power. Transportation showed an expenditure of $400,000,000 during the year. This is about an 8 percent increase. A 5 percent increase is expected for 1953. Communications jumped 18 percent over 1951 and reached a total of $550,000,000. It is predicted that a new peak will be reached during 1953; an increase of nearly 5 percent is expected. Electric power, which showed only an increase of less than 3 percent in 1952, is expected to jump 12 percent in 1953. The total for 1952 was $2,975,000,000; it is expected to go to $3,350,000,000 this year.

**Public Construction** Another big year is in prospect for most types of public construction. It is expected that the total spending will top the present high level by more than 6 percent. The figures for 1952 show a 10 percent increase over 1951 and reached a total dollar figure of $10,637,000,000 for the year. This is approximately one-third of the total spent on new construction of all types for the year. School building is high and is expected to go still higher. In 1952 more than $1,618,000,000 was spent for educational facilities. This was about 7 percent more than in 1951. A similar rise is predicted for 1953, to give a dollar volume of $1,775,000,000. Highway construction increased 17 percent and was $2,740,000,000. Lack of structural steel for bridges and reinforcing was a retarding factor in this field during the year. Relaxation of controls on materials should stimulate the highway building program. It is estimated that an increase of 9.5 percent will occur to give a dollar figure of more than $3,000,000,000 for 1953. Detailed reports on highways will be given later.

Military expenditures added $1,355,000,000 to the construction field during 1952. This was an increase of $355,000,000 over 1951, or 35 percent. These expenditures are expected to rise another 18 percent to $1,600,000,000 during this year. Public industrial construction, which now is 64 percent above last year, is expected to rise another 3 percent. In 1952, $1,649,000,000 was expended, and $1,700,000,000 will be expended this year. Virtually all of this is for atomic energy plants and military ordnance factories.

**Corps of Engineers** While the Army Engineers supervise construction activities at military establishments, they are also responsible for flood control and rivers and harbors projects all over the country. In 1952 the Army Engineers spent $581,217,000 on these non-military projects. The expenditures for 1953 will be nearly 4 percent less, $561,901,000 being available. Most of the funds are for projects already under way.

The Army projects are allocated by river basin areas and include both flood control and navigation projects in the following summary:

| | |
|---|---|
| Columbia River Basin | $137,375,000 |
| Missouri River Basin | 90,827,000 |
| Mississippi River Alluvial Valley | 45,700,000 |
| Sacramento-San Joaquin River Basins | 33,200,000 |
| Ohio River Basin | 32,127,000 |
| Gulf Coast, New Mexico, Texas Streams | 30,872,000 |
| Arkansas-White River Basins | 14,850,000 |
| Middle Atlantic Area | 14,106,000 |
| Red-Ouachita River Basins | 11,925,000 |
| South Pacific, Arizona, Utah Streams | 11,900,000 |
| South Atlantic Area | 11,100,000 |
| Upper Mississippi River Basin | 9,019,000 |
| Great Lakes Basin | 6,115,300 |
| New England Area | 656,800 |
| Red River of the North Basin | 625,000 |

**Highway Construction** Construction expenditures on highways are setting new records. This is the fifth consecutive year that these expenditures have reached new heights. And a further increase is expected for this year! Highway building was in excess of $2,740,000,000 in 1952, which was an increase of $440,000,000, or 19 percent. A rise of 10 percent is foreseen for this year which would bring highway construction over the $3,000,000,000 figure.

Toll roads are not as prominent in the highway picture as during the last few years when several large projects were being constructed. At present, work is proceeding on the $500,000,000 Throughway in New York, and work has started on the $300,000,000 Ohio Turnpike. Studies in a number of states are being undertaken with a view to presenting recommendations to the legislatures in relation to the highway problem and the toll road method of financing. Planning is under way for a toll road across Indiana from a junction with the Ohio Turnpike to Illinois. This would provide access to the Detroit and Chicago areas. A proposal has been made to develop a toll road across Wisconsin that would pick up the traffic from Chicago and eastern points and carry up into the northern Wisconsin vacation and sports areas. This would also extend over and connect with Minneapolis. An 85-mile turnpike in West Virginia, running from Charleston to Princeton, will get under way in 1953. Bonds have been issued and construction work will hit a high pace, with completion scheduled for June, 1954.

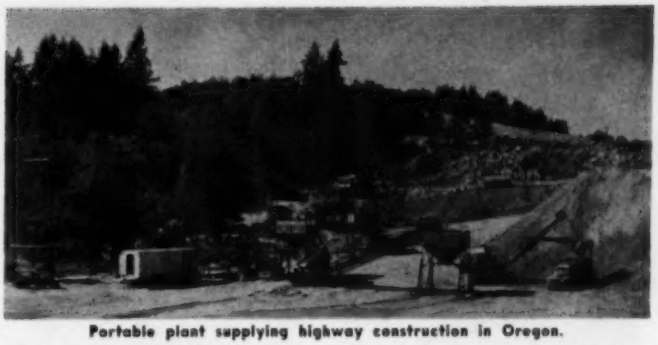
Georgia is making plans for a toll road to cross the state from Cartersville to Chattanooga. Virginia is planning a 75-mile cross-state route. Massachusetts and North Carolina are working on preliminary toll road plans as a result of recent legislation. Colorado has found that toll revenues are exceeding financing costs and is giving thought to additional routes.

States that have toll highways are generally planning to extend them to additional cities or to connect with routes from adjacent states. New Jersey and Pennsylvania are among these. New Jersey is also planning for a 175-mile Garden State Parkway.

Agitation for toll road legislation in the New England states, Florida, Iowa, Maryland, Michigan, Kansas, and Wisconsin is increasing. The Wisconsin and Michigan legislatures, while authorizing study, have turned down proposals to create toll road authorities.

Whether the emphasis on highway construction is on toll roads, freeways, or express routes, certainly the great amount of interest that is being stimulated by a concerted attack on inadequate highways by the P.A.R. movement will result in greatly expanded highway construction. The P.A.R. movement is a joint effort on the part of several national organizations concerned with highways, to obtain a united front on the problem of inadequate roads. Termed "Project Adequate Roads", the movement aims to point up the danger of worn out and badly planned highways and to focus public attention on them so that remedial action is taken by the proper authorities. This movement is being organized on local and national levels, so that the entire highway problem is covered.

**Reclamation** The states in the Plains Region and the Far West are primarily interested in the activities of the Bureau of Reclamation. This agency is responsible for irrigation projects and has constructed some of the largest dams, power plants, and canals in the world. The activities of the Bureau are on a fiscal year basis and run from July to June. Appropriations for the fiscal year 1953 total $206,447,991. These funds will continue work on projects now started and will permit construction to begin on seven new projects in 1953. These new projects are as follows: Pactola Dam in South Dakota; Tiber and Missouri Diversion Dams in Montana; Webster Dam in Kansas; Monticello Dam on the Solano Project in California; Sly Park Dam on the Central Valley Project in California; Chandler Power and Pumping Plant on the Yakima Project in Washington; and the Gateway Tunnel on the Weber Basin Project in Utah.



**Portable plant supplying highway construction in Oregon.**

Some of the major projects of the Bureau of Reclamation that were completed in 1952 are the following:

Columbia River Basin Project, Washington—150 miles of pipe line and laterals.

Hungry Horse Dam, Montana—Final placement of 3,000,000 cu. yd. of concrete in the dam structure.

Central Valley Project, California—260 miles of concrete pipelines and laterals in Friant-Karn Canal system. Lauro and Glen Anne dams.

Gila Project, Arizona—50 miles of main canals and Wellton-Mohawk Pumping Plants 1, 2, and 3.

Colorado-Big Thompson Project, Colorado—Rattlesnake and Willow Creek Dams. Carter Lake Reservoir. Total of 12 miles of tunnels at Rattlesnake, Olympus, Pole Hill, Bald Mountain, and Carter Lake.

Eden Project, Wyoming—Big Sandy Dam.

Provo River Project, Utah—Duchesne Tunnel (6 miles) and diversion dam.

Missouri River Basin Project—Keyhole and Boysen dams, Boysen power plant, 29 miles of lateral canals.

Projects under way or to be started in 1953 are as follows:

Columbia Basin Project, Washington—67 miles of main canals and 280 miles of pipelines and laterals to be started.

Palisade Project, Idaho—Further construction on dam.

Central Valley Project, California—Folsom and Nimbus power plants, and Nimbus Dam, continued progress. Sly Park Dam, Camp Creek Diversion Dam, 130 miles concrete pipe line on Friant-Kern System, 50 miles of laterals on Madera Canal system, and 10 miles of concrete pipe line on the Delta-Mendota system are to be started. Cachuma Dam to be completed, and Sheffield Tunnel to be concreted.

Gila Project, Arizona—56 miles concrete-lined laterals to be constructed.

Eden Project, Wyoming—Prospect Diversion Dam to be started.

Missouri River Basin Project—Canyon Ferry, Trenton, Jamestown, Tiber, Webster and Pachtola Dams to continue. Angostura Canal to be completed. 16 miles of laterals and 75 miles of main canals to be started.

**Highway Construction By States** The expenditures and other important details of highway work (by states) are given below. This information was supplied during December in response to a questionnaire sent to all highway departments and is the very latest information available.

**ARIZONA** — During 1952, 120 miles of primary roads were completed and opened to traffic in Arizona. Of major importance was the 45 miles of new alignment of U. S. 66 between Topock and Kingman at a cost of three million dollars. Construction expenditures during 1952 amounted to about $8,500,000 on primary roads and $3,500,000 on secondary roads. Mileage completed on secondary roads during 1952 amounted to 90 miles.

Plans for 1953 call for about 200 miles of new highways, with expenditures for construction amounting to about $12,500,000.

A shortage of structural steel seems to be the only bottleneck the state is facing in highway construction at the present time. Arizona was fortunate in being able to purchase 450 tons of used structural steel last October which came from a railroad structure near Richmond, Virginia. This steel will make possible the immediate construction of four major bridges in the state.

Major items in the 1952-53 budget to be let during 1953 include:

**Interchange on Ford and Lodge Expressways near Detroit. Superhighways continued to be prominent in road building.**

| Route | Location | Amount |
|---|---|---|
| St. 84 | Tuscon Expressway | $760,000 |
| U.S. 89 | Tucson-Nogales | 835,000 |
| U.S. 80 | Tucson-Benson | 800,000 |
| St. 69 | Phoenix-Prescott | 600,000 |
| U.S. 60 | Phoenix Tempe | 230,000 |
| U.S. 60 | Globe-Show Low | 600,000 |
| U.S. 66 | Kingman-Ashfork | 325,000 |
| U.S. 66 | Ashfork-Williams | 500,000 |
| U.S. 66 | Winslow-Holbrook | 450,000 |
| St. 73 | McNary-Eagar | 475,000 |
| St. 79 | Cordes Jct.-Camp Verde | 425,000 |
| U.S. 80 | Yuma-Gila Bend | 775,000 |
| St. 93 | Wickenburg-Kingman | 450,000 |

*R. C. Perkins*
*State Highway Engineer*

**ARKANSAS**—The following mileage of roads was constructed on the State Highway System in 1952 at a cost of $ (Cost figure not available).

| | Grading | Gravel | Bituminous |
|---|---|---|---|
| Miles | 45.07 | 217.94 | 403.60 |
| | Concrete | Total | |
| Miles | 19.03 | 645.64 | |

Highway Department Engineers are preparing a new set of specifications which will probably be put in use in 1953.

Department Engineers have developed a precast concrete section for use in redecking treated timber bridges or for new trestles. This section is 19 feet long and 3 feet six inches wide. The sections are bolted together and can be used to build any width of bridge, and a great deal of interest has been displayed in these sections by engineers from surrounding states.

*A. E. Johnson*
*Chief Engineer*

**CALIFORNIA** — Between July 1, 1951 and June 30, 1952 the California Division of Highways awarded 360 contracts, the value of which amounted to $107,991,400, including construction engineering but not including right of way costs. Expenditures for right of way acquisition and clearance totaled $33,128,600.

*G. T. McCoy*
*State Highway Engineer*

**CONNECTICUT**—As of December 1, 1952 this department had completed 13.3 miles of state highway construction. In addition we completed grading and drainage jobs, reconstruction of wire rope railing, and various other projects. The estimated expenditure for all contracts completed in this calendar year is $7,750,000. Adequate data for town roads are not available.

In 1953 the highway department expects to advertise for bid, approximately 53 miles of construction at an approximate cost of $22,000,000.

One of our major difficulties is obtaining competent enginers for the department. The higher salaries offered to trained engineers by private business and industry puts governmental agencies at a disadvantage in recruiting new help and in retaining capable personnel. Until these positions are made more attractive by offering higher salaries the highway department will be greatly limited in its ability to plan, design, and build new roads.

*G. Albert Hill*
*State Highway Commissioner*

**DELAWARE**—For the fiscal year 1952 this Department constructed 76.2 miles of primary highways, and 21.8 miles of secondary roads. This construction included the dualing of U. S. No. 13 from Dover to Maryland State Line, and the reconstruction and widening of other primary and secondary roads, as well as several new bridges. The estimated dollar cost of this program was $10,700,000.

Our plans for the 1953-1954 fiscal year in the way of mileage and dollar expenditure is entirely contingent upon the funds that the next General Assembly allocates to this Department. It is estimated that approximately 75 miles of primary and 25 miles of secondary roads will be included in this program. The dollar value should approach $12,000,000.

In many instances our construction program was slowed by the inconsistent deliveries of steel supplies. Engineering personnel and skilled labor continue to be difficult to obtain. Other construction materials were in fair supply.

*John A. Joslin*
*Administrative Assistant*

**GEORGIA** — Contracts were awarded by the State Highway Department of Georgia during the first eleven months of the calendar year 1952 for the construction of roads and bridges as follows:

| | Mileage | Costs |
|---|---|---|
| Roads on the State Highway System | 1,057 | $23,001,676 |
| County Roads | 1,186 | 13,922,054 |
| Total Contracts Awarded in 1952 (11 mos.) | 2,243 | $36,923,730 |

It is estimated that the following amounts will be avaliable for awarding contracts during the calendar year 1953:

| | Mileage | Costs |
|---|---|---|
| Roads on the State Highway System | 1,300 | $29,000,000 |
| County Roads | 1,400 | 16,000,000 |
| Total Estimated Amounts for 1953 | 2,700 | $45,000,000 |

*Roy A. Flynt*
*State Highway Planning Engineer*

**IDAHO**—For the 1953 Construction Program, the Department of Highways has scheduled 18 new projects on the Primary State highway system, and 12 new projects on the Secondary State highway system, estimated to cost about $9,400,000 and $2,900,000 respectively. In addition, four projects on the Primary and 10 projects on the Secondary systems scheduled for construction during 1952 but deferred for right-of-way or other compelling reasons, estimated to cost $1,400,000 and $2,400,000 respectively, are rescheduled. About $2,700,000 in additional construction, including $800,000 carried over from the 1952 construction program, is scheduled on 36 county road projects on the Federal-aid Secondary System.

*E. V. Miller*
*State Highway Engineer*

**ILLINOIS**—Nearly 1,100 miles of high-type pavement and 150 bridges and grade separations have been placed under contract in Illinois up to November 1 this year.

This work, part of the state's highway restoration program, is included in the $86-million of contracts awarded this year for highway improvements.

Old two-lane rural pavements are usually widened with concrete to either 22 or 24 feet prior to surfacing with bituminous concrete.

*Frank N. Barker*
*Chief Highway Engineer*

**INDIANA**—The following information includes all Road Contracts in progress and awarded in 1952. Money values included the October 30, 1952, Progress Estimates and Finals.

| | | |
|---|---|---|
| Miles under Contract 1952 | 855 | Pri. |
| Miles Completed 1952 | 509 | Pri. |
| Miles under Contract 1952 | 108 | Sec. |
| Miles Completed | 92 | Sec. |
| Contract Price 1952 | $33,218,325.00 | Pri. |
| Contract Price 1952 | 1,150,646.00 | Sec. |
| Amount of Completed Work 1952 | 20,614,976.00 | Pri. |
| Amount of Work Completed 1952 | 1,044,544.00 | Sec. |

As you will note, we spent approximately $20 million on the primary system in 1952 and it is assumed that approximately the same amount will be contemplated for 1953.

It is felt that the road building efforts in 1952 were hindered due to the shortage of engineers. This fact is reflected in both the field and office forces but it is most noticeable in the Design Room, where it rushes everyone to prepare the contracts for lettings.

It can be assumed at the present time that the same conditions, as far as enginers are concerned, will exist in 1953.

*Ray H. Bower*
*Chief Engineer*

**IOWA**—Since the financial and construction reports of the Iowa State Highway Commission are on the fiscal year basis ending June 30 of each year, we are not in a position to give you this data on the calendar year basis; however, for the fiscal year ended June 30, 1952, the following amounts of various items of construction work were performed on the primary or state road system of the state of Iowa:

| Kind of Work | 1952 |
|---|---|
| New paving | 105.1 mi. |
| Payment widened and resurfaced | 28.4 mi. |
| Pavement resurfaced, but not widened | 302.9 mi. |
| Grading | 231.2 mi. |
| Gravel | 33.9 mi. |
| Stabilized base and bituminous surf. | 108.4 mi. |
| Bridges and Culverts | 567 |

The volume of Iowa primary road construction work for the fiscal year ending June 30, 1953, will be about the same as for the fiscal year ending June 30, 1952.

*F. R. White*
*Consulting Engineer*

**Triple interchange on Gulf Freeway, Texas. Typical of modern highway planning.**

**KANSAS**—In the year 1952 we placed under contract a total of $30,716,530 of highway construction on the State Highway system and city connecting links and the approved Federal-Aid County Secondary system. In addition to this, $2,461,539 was contracted for resurfacing our highways on the State system. This resurfacing consisted of bituminous and dry-aggregate surfacing.

| | |
|---|---|
| Estimated Construction Expenditures | $30,000,000 |
| Estimated Maintenance Expenditures | 2,500,000 |
| (For Maintenance Resurfacing contracts only) | |

*R. C. Keeling*
*State Highway Engineer*

**MAINE**—During 1952 we placed under contract 47 miles of primary road at a cost of $5,223,000. We also placed under contract during 1952 80 miles of Secondary road at a cost of $5,918,000.

Our program for 1953 has not yet been determined. Shortage of steel delayed completion of some of our 1952 work.

*R. M. Page*
*Assistant Highway Engineer*

**NEW JERSEY**—Construction on the State Highway System will be completed in 1952, totaling $17,200,000 and embracing 53,660 miles. This includes widening, dualization, new alignments, reconstruction and repairs.

On the Federal Aid Secondary System, construction was completed on 6.361 miles of road, totaling $1,336,000.

A construction program in the amount of $72,818,000 for the 1953-1954 fiscal year is contemplated.

This includes $18,000,000 for the East-West Freeway in Essex County, with $13,000,000 allocated for construction and $5,000,000 for rights of way. This would enable undertaking the first section of the Freeway from Route 21 in Newark to Orange Street.

Other projects requested include the completion of the dualization of Route 20-A, from Kingwood Station to Raven Rock in Hunterdon County, $3,000,000; completion of dualization of U. S. 22 (N. J. Route 28) from West Portal to Still Valley in Hunterdon and Warren Counties, $4,000,000; Route S-4-B paving from Maple Avenue to Goffle Road, Bergen and Passaic Counties, $3,200,000; Route 32, new bridge construction, Morris County, $1,000,000; Route S-28, completion of freeway from Women's College to Albany Street, in New Brunswick, Middlesex County, $3,250,000; Route 17, dualization and paving from Franklin Turnpike to New York State Line, Bergen County, $3,500,000; reconstruction of Kingston section, Mercer, Somerset and Middlesex County, $800,000.

Some $9,000,000 in Federal Aid is anticipated under the program, with some $64,000,000 of state funds requested. Also requested is $16,038,000 for normal operations of the Department.

Some major projects were delayed from six to eighteen months, due to shortages of steel. The Trenton Freeway is some six months behind scheduled completion and the Route 25-A Expressway in Essex County has been delayed up to eighteen months. Cement supplies were adequate. The principal shortage in the labor pool was the lack of good finishers for concrete pavements.

In the interest of keeping abreast of new developments and ideas in road design and construction, New Jersey has in the past year con-

**Divided pavement on New York Throughway with turnout.**

structed on one of its heavily travelled truck routes, a pavement of the so-called "contraction joint" design. This pavement is of plain concrete, 10 inches thick, and has undowelled contraction joints 15 feet—center to center. This pavement is supported by an exceptionally stable sub-base of 4 inches of crushed stone, with the voids well filled. Underlying this is 8 inches of granular material. It is hoped to establish the effectiveness of this pavement type when subjected to truck traffic.

The contraction joints of the above pavement were formed by the finishers at the time the concrete was placed. New Jersey recently investigated elsewhere the use of a concrete saw in forming the contraction joint grooves. The sawing was done within twenty-four hours after the concrete was placed. This short time interval was necessary to prevent intermediate, premature cracking.

In addition to the foregoing, the specifications have recently been modified to permit the use of approved vibrators in consolidating and filling macadam bases. Previous observations determined that this method would produce a more stable base.

*W. C. Davis*
*Engineer of Special Assignments*

**NORTH CAROLINA**—The figures include estimated mileage and estimated cost of construction to Dec. 31, 1952.

**Miles Primary Road Built in 1952 (Estimated)** All Types..... 850

**Miles Secondary Road Built in 1952 (Estimated):**
New Hard Surfacing, Miles.....3,640
Stabilization, Miles .....4,524

The cost per mile of the various types of road is not available at this time.

**Estimated Mileage to Be Built in 1953**
Bituminous Mixes and Treated Types .....2,580
Other Types (Grading, Light Stabilization, Retreatment, etc.)..1,060

**Estimated Construction Expenditures (1953)** .....$65,223,000.00

**Estimated Maintenance Expenditures (1953)** .....$32,789,000.00

The shortage of steel has hindered to a considerable extent the building of culverts and bridges of our road building program in 1952.

*W. H. Rogers, Jr.*
*State Highway Engineer*

**NEW MEXICO**—On the Primary System we completed 178 miles of highways in the approximate cost of $10,800,000. On the Federal-Aid Secondary System, we completed 314 miles at the approximate cost of $6,-350,000. As far as the money value is concerned, this runs a little higher than was contemplated for 1952 as it is a carry over from 1951 into 1952 of a few projects that were very expensive.

In 1953 we expect to spend approximately $16,000,000 for highway construction and betterments, and $5,000,000 for maintenance. As far as mileage is concerned, we figure that we will better approximately 600 to 650 miles of highways. As to the factors that may have hindered road building efforts during 1952, we believe the steel situation was the only material that changed our plans to any extent. We have delayed the building of bridges requiring large amounts of steel waiting for that situation to ease up.

In 1953, we believe that by the 3rd quarter of the year we will be able to build a few bridges and overpasses under our present steel allotment figures, and therefore, we believe that the steel situation will not affect our program for that year.

We are at the present time revising our Standard Specifications for Road and Bridge Construction.

*C. O. Erwin*
*Chief Highway Engineer*

**MASSACHUSETTS**—As the majority of the projects which this State constructs are of such a nature that two, three or even four years are required to complete construction, the only true figure which can be given is data on contracts awarded during the past year. Massachusetts has no system of primary and secondary roads, and the State highway system and all roads are being built with a heavy duty hardened surface at least 24 feet wide. The major thru-state arteries are being constructed as divided highways with two roadways of at least 24 feet each on a limited access layout and with grade separations at important intersections. Contracts awarded during the calendar year 1952 are as follows:

MAJOR THRU-STATE ARTERIES, 21 Contracts for 27 miles of road, including 24 bridges, at a total cost of $62,593,000. This includes a portion of the Boston Central Artery, an elevated highway through the heart of the City.

OTHER STATE HIGHWAYS AND ROUTES, 42 Contracts for 26 miles of road, including 22 bridges, at a total cost of $7,601,000.

In addition to resurfacing 34 miles of State highway at a cost of $1,699,-600 and a maintenance program of $35,500,000, the State also contributed $4,000,000 in financing half the cost of rebuilding about 140 miles of city, town and county roads.

*P. H. Kitfield*
*Chief Engineer*

**NEW YORK**—In New York State, the State Highways are considered the Primary System and the Town and County roads the Secondary System. Through November 1, 1952, the State Department of Public Works has awarded some 600 miles of construction and reconstruction work for a value of 172 million dollars. The Department anticipates awarding in November and December, 1952, an additional 130 miles at a cost of nearly 100 million dollars.

The construction and reconstruction projects in the Secondary System are reported annually by the Counties and Towns to the Superintendent of Public Works. This information is not available until late in January, 1953.

The 1953 construction program is under study at the present time, and no figures available.

*B. A. Lefeve*
*Director*

**NEBRASKA**—To date in 1952, the Department of Roads and Irrigation has awarded contracts for improvement of 168 miles of Federal-Aid Highways at a cost, based

on contract unit prices and estimated quantities, of $2,857,073.37. During the same period, contracts have been awarded for improvement of 232 miles of Federal-Aid Secondary Highways at a cost, based on the same factors, of $1,873,394.07.

*William H. Palmer*
*Chief, Information Section*

**MICHIGAN** — For the calendar year of 1952 up to the 1st of November we have let contracts on the primary trunkline system for 1,329 miles of trunkline construction, at a contract cost of $3,998,000. On the county road secondary system, in the same period, we let contracts for 314 miles of county road construction, at a contract cost of $4,271,000.

During 1953, is it expected that our mileage construction and dollar expenditures on primary trunklines will be somewhat less than it has been in 1952; and it is expected that construction on secondary county roads will be somewhat larger than during 1952.

Concrete pavement construction was definitely hindered during the past year by the cement shortage. There were projects that were not put under contract because cement could not be obtained. Steel supplies did not definitely prevent us from letting contracts, but they did slow down projects in which steel was required.

It is expected that the cement shortage will ease somewhat for the year 1953. We do not expect much change in the steel situation.

We do not expect any major changes in specifications, types of pavement, or construction methods. If there are any changes, they will be minor, and just what they will be, we are not in a position to state.

*H. C. Coons*
*Deputy Commissioner-Chief Engineer*

**MINNESOTA**—We are pleased to submit the following information.

| | Miles | Estimated Cost |
|---|---|---|
| Primary Trunk Highways Constructed in 1952 | 820 | $24,615,000 |
| Secondary Trunk Highways | 420 | 7,909,000 |
| Total Trunk Highway Construction | 1,240 | $32,624,000 |
| **1953 Work Proposed** | | |
| State Primary Trunk Highway | 859 | $32,000,000 |
| State Trunk Highway Secondary | 291 | 5,760,000 |
| Total | 1,150 | $37,760,000 |
| County Federal Aid Secondary Projects —1952 | 931 | $ 6,586,000 |

*O. L. Kipp*
*Assistant Commissioner and Chief Engineer*

**MISSOURI** — Up to the present time in 1952 we have awarded contracts on the state highway system as follows:

| Major System | Miles | Cost |
|---|---|---|
| Graded earth ... | 5.603 | $ 92,420.74 |
| Granular ..... | 6.691 | 308,818.99 |
| Low type Bit.... | 351.818 | 2,369,937.96 |
| Oiled earth .... | 4.554 | 9,152.00 |
| High type Bit... | 236.214 | 8,859,204.05 |
| P. C. C..... | 62.393 | 11,483,177.43 |
| Miscellaneous .. | | 3,449,977.95 |

You may be interested in what we have done thus far in 1952 on urban projects. The total is $4,357,359.98 and covers a total mileage of 1.393 miles. These figures are in the above mentioned totals and I have merely set them out to give you the urban picture.

The outlook for 1953 is more optimistic at this time as far as shortages are concerned; however, in these uncertain times this condition could be changed over night. We do still have a shortage in technical and engineering personnel which has an effect on the execution of our plans.

*Rex M. Whitton*
*Chief Engineer*

**NORTH DAKOTA**—During the 1952 construction season 145 miles of asphaltic concrete surfacing, 338 miles of grading, 6 miles of concrete paving and 542 miles of gravel surfacing were completed on the North Dakota primary highway system. On the secondary system 550 miles of grading and gravel surfacing were completed. In regard to dollar cost the following costs per mile for each type are average.

*H. Muller*
*Ass't Construction Engineer*

**OHIO**—To December 1, 1952, we paid out to contractors for work completed the sum of $73,500,000. This work was on approximately 550 miles of highways.

Our 1952 program was hindered to a considerable extent by shortages in cement, steel, and labor. The quality of our work was probably impaired by the shortage of engineers.

*L. F. Schaeublin*
*Assistant Director and Chief Engineer*

**OREGON**—Work performed in 1952 and anticipated for 1953 are 728 and 730 miles, respectively.

Estimated construction expenditures for the calendar years 1952 and 1953 are:

| | 1952 | 1953 |
|---|---|---|
| Primary Highways | $24,300,000 | $27,900,000 |
| Secondary Highways | 3,300,000 | 3,450,000 |
| Local Roads | 1,900,000 | 2,000,000 |
| | $29,500,000 | $33,350,000 |

On the whole, the year 1952 has been a satisfactory year for highway construction. Bridge construction was delayed somewhat by difficulties in getting deliveries on steel, but this delay did not materially affect overall progress. We expect 1953 to be an equally satisfactory year from the construction standpoint.

Construction expenditures in Oregon are about double normal amounts due to a $40,000,000 bond issue authorized by the 1951 Legislature.

*R. H. Baldock*
*State Highway Engineer*

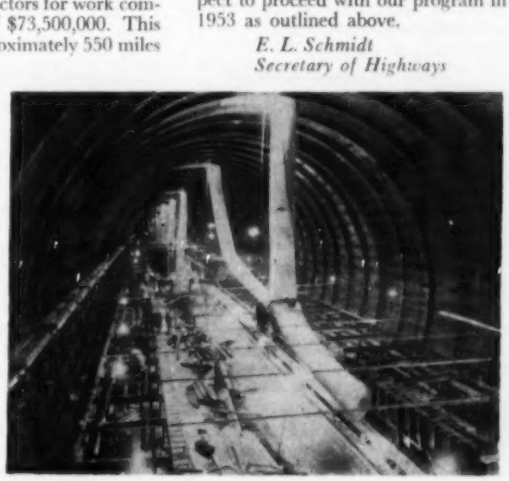
**PENNSYLVANIA**—During 1952 we constructed approximately 500 miles of primary roads and 1800 miles of secondary roads. The estimated dollar cost of this program was $125,000,000. We have not divided the cost by types.

During 1953 we plan a mileage of approximately 2,000 miles at an estimated cost of $125,000,000.

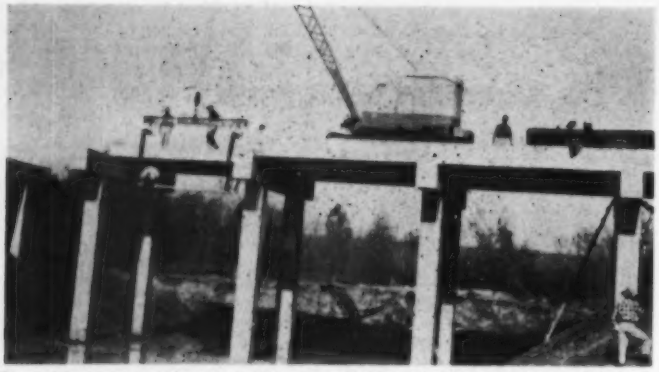
During 1952 our highway efforts were seriously hampered by cement and steel shortages and by the steel strike which extended for a two month period during the year.

Despite these obstacles we were able to attain our objectives. We expect to proceed with our program in 1953 as outlined above.

*E. L. Schmidt*
*Secretary of Highways*



**Highway tunnel being constructed under Houston ship canal to replace ferry.**



**Precast concrete replaced steel in many highway bridge structures. This is in Arkansas.**

**SOUTH CAROLINA** — Unfortunately it is too early to give a very accurate accounting of the total amount of work performed in this state during this year. However, based on incomplete tabulations, construction awards for road work during 1952 amounted to about $17,900,000 for about 1,200 miles of roads, while bridge construction awards amounted to an additional $2,600,000.

During 1953 the Highway Department anticipates construction awards amounting to about $22,000,000, of which about $2,000,000 will be for resurfacing old pavement. It is anticipated that about 1,200 miles will be constructed and surfaced with conventional bituminous mixes and treatments. It is planned to keep existing roads in condition with a maintenance expenditure of about $8,500,000, including an outlay of about $1,000,000 for replacement of worn-out or antiquated equipment.

*Jesse A. Rutledge*
*Director of Public Relations*

**TEXAS**—1. Construction Projects let or started in 1952:

| | |
|---|---|
| 1,422 miles—Primary Roads | $61,860,335 |
| 1,988 miles—Secondary Roads | 28,378,443 |
| Bridges, Underpasses, and Overpasses | |
| Primary Roads | 12,358,920 |
| Secondary Roads | 2,925,393 |
| Total | $105,523,091 |

(Mileage is excluded on seal costs, retreads, and reconstruction projects where the work performed does not change the type of existing facility.)

2. Construction Projects to be let in 1953 probably will total 4,200 miles at a total cost of approximately $125,000,000.

3. Present conditions may further retard road construction due to the shortage of engineering personnel and restrictions on the use of critical materials.

*D. C. Greer*
*State Highway Engineer*

**VERMONT** — Primary roads built in 1952:

Primary roads built in 1952

| | Miles | Cost |
|---|---|---|
| Completed | 25.6 | $2,435,941 |
| Contracted | 30.0 | 3,307,408 |
| | 55.6 | $5,743,349 |

Secondary roads built in 1952

| | Miles | Cost |
|---|---|---|
| Completed | 60.8± | $ 996,805* |
| Contracted | 27.5 | 1,405,248 |
| | 88.3 | $2,402,053 |

*Includes 43 miles built by towns under State Aid.

Planned for 1953:

Primary (State Highway System)

| | Miles | Cost |
|---|---|---|
| Uncontracted balance for 1952 | 15.1 | $1,677,757 |
| Proposed 1953 Program | 40.8 | 4,245,000 |
| | 55.9 | $5,922,757 |

Secondary (State Aid System)

| | Miles | Cost |
|---|---|---|
| Uncontracted balance for 1952 | 2.7 | $ 182,643 |
| 1953 Program already chosen | 12.5 | 508,500 |
| Not yet programmed | 50.0± | 2,500,000† |
| | 65.2 | $3,191,143 |

†Includes roads which will be constructed by towns under State Aid.

We in Vermont have deviated from the practice of constructing cement concrete highways, using bituminous materials almost exclusively. In the past year we have experimented with stabilized gravel base roads, using bituminous materials to stabilize the top 2½" of gravel and then sealing the mix. We also have done considerable asphaltic hot mix resurfacing on deteriorated cement concrete pavements . . .

*H. E. Sargent*
*Chief Engineer*

**VIRGINIA**—We operate on a fiscal year basis and the only figures available are for the year ended June 30, 1952. During the past fiscal year 232 miles of federal aid secondary highways were constructed at a cost of $3,868,560. Primary highway construction totaled 389 miles at a cost of $25,640,773.

I understand from our construction engineers that they expect to do about the same amount of work during the 1953 fiscal year and spend about the same amount of money. There are no new specifications or construction methods to report.

*Harry L. Smith*
*Director of Public Information*

**WISCONSIN** — Contracts and day labor agreements with the counties negotiated in 1952 for work on the Wisconsin State Trunk Highway System are listed below. Contract mileage is listed rather than net mileage because of construction by stages.

| Primary System | Miles | Amount |
|---|---|---|
| Grade | 93.6 | $3,721,800 |
| Gravel or Crushed Stone | 51.0 | 708,000 |
| Grade & Gravel or Crushed Stone | 68.2 | 4,126,400 |
| Bituminous Surfacing | 307.4 | 10,330,300 |
| Concrete Surfacing | 105.6 | 11,052,500 |
| Structures | | 1,641,000 |
| **Secondary System** | | |
| Grade | 78.7 | $2,803,300 |
| Gravel or Crushed Stone | 52.4 | 634,800 |
| Grade & Gravel or Crushed Stone | 26.8 | 1,369,800 |
| Bituminous Surfacing | 159.1 | 2,067,900 |
| Concrete Surfacing | 4.3 | 1,132,700 |
| Structures | | 1,725,300 |

The 1953 expectations of work on the State Trunk Highway System to go to contract encompass 590 miles at a total cost (not contract cost) of $42,800,000.

Factors hindering 1952 highway construction were low availability of structural steel, the steel strike, and some difficulties in obtaining cement.

*E. L. Roettiger*
*State Highway Engineer*

**WASHINGTON** — We completed construction on 440 miles of primary state highways in 1952 and on 144 miles of secondary state highways.

We are unable to provide you at this time with any figures on mileage of highways we expect to build and dollars we expect to spend in 1953.

You ask the effect present conditions will have on our program for 1953. I imagine you are referring to the periodic shortages of steel and personnel as well as the high cost of construction and maintenance. I don't think their effect on our 1953 program will be materially different from their effect in 1952.

*W. A. Bugge*
*Director of Highways*

# 1952 Sixth Consecutive Peak Year

*Production, shipments, values reach new highs: mill stocks near 1950 record low.*

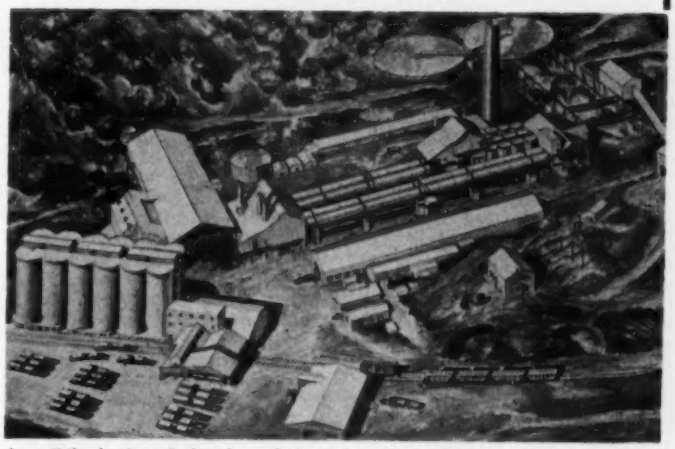
By WALTER E. TRAUFFER

OFFICIAL figures for the first 11 months of the year make it evident that the portland cement industry in 1952 for the sixth consecutive year set new all-time records in both production and shipments. These figures, with conservative estimates for December, show production to have been about 248,000,000 bbl. and shipments about 249,000,000 bbl. This was an increase of 1 percent in production, and 3½ percent in shipments over the 1951 recond totals of 246,022,000 and 241,153,000 bbl., respectively. This excellent showing reflects the continued efforts of the industry to overcome the sporadic and localized shortages of cement which still exist, by getting maximum production from its existing facilities and continuing its extensive expansion program.

Shipments during the first 10 months of 1952 exceeded production by over 11,000,000 bbl., bringing the stocks of cement on hand at the end of October to 6,543,000 bbl., the low point of the year. This was 6 percent under the low of 6,944,000 bbl. at the same time in 1951, but still above the record low of 5,668,000 bbl. at the end of October, 1948.

The fact that shipments showed a much larger increase over 1951 than did production requires explanation. The industry was beset by the usual handicaps to production, such as car, material, and equipment shortages, etc. Construction volume was held down by controls and by the steel strike. The real deterrents to production, however, were the strikes in the cement industry itself, which are estimated by various authorities to have cost the industry between 3,000,000 and 10,000,000 bbl. of cement production.

During the year the industry again operated at a very high percentage of its rated capacity but, due largely to the extended strikes affecting a substantial part of the industry, probably did not approach the estimated 91 percent reached in 1951, which is believed to be the record. From information available it is estimated that about 88 percent of capacity was utilized in 1952. Many individual companies, however, reported the greatest volume of production and the highest capacity in their histories.



An artist's drawing of the plant of the Calaveras Cement Co., San Andreas, Calif., showing recent additions.

Producers from most sections of the country report record production and shipments in 1952, and the comparatively few areas where shortages were reported were mostly those in which plants were shut down by strikes for periods of various lengths. Other shortages were apparently local and temporary and are believed to have been due largely to the industry strikes, to uneven distribution of the supply, and to localized surges of demand.

Again it is impossible to forecast with any degree of certainty the prospects for the cement industry in 1953, but most producers feel that it will be another good year, perhaps setting another new record of production. There is a general feeling that the restrictions on the allocation of materials for construction, particularly steel, will be eliminated early in 1953 and that price and other controls may also be dropped. There is also the assurance that construction volume will continue at its present record level for at least the first half of 1953. All of these factors would increase the demand for cement.

On the other hand, there is a widespread feeling in the industry that much of the present prosperity depends upon defense expenditures, which might drop off sharply if a peace or actual truce were achieved in Korea. It is difficult, however, to visualize any sharp dropping off in construction volume when so much work needs to be done, especially on highway construction.

Much of the information we have on the condition in the cement industry in 1952, and on prospects for 1953 comes from answers to a questionnaire sent to each producing company. Quotations from some of these letters follow.

On this subject an Eastern producer says:

**Aerial view of the Harleyville, S.C., plant of the Carolina Giant Cement Co., showing the new kiln and other equipment recently installed. A new crusher station was built in the quarry at the left.**

"As was general with all plants in the East, we enjoyed excellent business during 1952 with both plants running at full capacity and even then with a backlog of orders. We expect 1953 to be the same from what we know of the situation at this time."

A Midwestern producer says:

"In our opinion, the demand for cement in the Mid-west, where we operate, will be great enough in 1953 to absorb all of the production in the area, and even then there will likely be shortages of cement in the area—in Nebraska, for example. In our opinion, the demand will be so heavy that there will be many out of normal area shipments. It seems to us that the pent-up demand for cement throughout the country, due to delays in building many highways, municipal improvements, etc., is sufficient to guarantee full operation of most of the cement plants in the country for several years to come, barring interference which may be caused by unusual conditions."

A California producer says:

"Speaking for California, and more specifically the northern part of the state, 1952 was again a very good year for the cement industry. On the whole the supply and demand factors in the northern California cement market were well balanced throughout the year. The basic demand for our product remained at a high level, and there were no shortages of cement which were brought to our attention. In common with most other manufacturing industries, we were caught in a severe cost-price squeeze which seriously affected our operating profits. During 1952 cost increases were widespread and affected all departments. Our largest per barrel cost increases occurred with respect to labor and fuel. Prices were frozen during the entire year at the September, 1950, levels by the OPS General Ceiling Price Regulation.

"Our company's sales volume during 1952 almost equaled our 1951 total, which established a new high record in the company's history. Our business for 1952 would undoubtedly have exceeded this 1951 record by a substantial margin had it not been for two unfavorable developments which depressed cement sales throughout the northern California market: (1) the unprecedented amount of rain which shut down construction almost completely in this part of the country during the past winter, and (2) the northern California carpenters' strike which lasted from March 31 to June 6, 1952.

"We have used rose-colored glasses in assessing the business prospects for 1953. Construction activity is expected to continue at a high rate in this part of the country, with the cement demand correspondingly strong. With our increased plant capacity effective for the entire year, we should, therefore, have considerably higher shipments during 1953. Public works will be a very importmant supporting factor, with heavy demand expected for construction of dams, military installations, schools and highways—in approximately that order. Construction volume for residential and commercial buildings should be maintained at high levels during the new year because of continuing population increases in Californiia (variously estimated between 25,000 and 50,000 per month) and the relaxation of government controls on credit and materials. We are optimistic that under the new administration in Washington, price controls will either be completely abolished or will be drastically modified during the coming year, and that we will be able to obtain a much needed and long overdue price increase."

A company operating widely throughout the West says:

"We still feel that there is a great deal of unfinished construction in the country and that in the next ten years demands for cement will increase rather than diminish. On the other hand, there are some indications that we will probably have a temporary readjustment in our economy, and it is entirely possible that there may be a lessening of demand for cement during the periods of that change. However, at present we have contracts on our books greater than for any similar period in our history; thus, it appears to us that for the next six or eight months, at least, the cement business will continue at a good level."

A Southeastern producer says:

"Barring a serious slump in business generally, we feel that most cement plants will be busy at least through next year—particularly in the Southeast, where the industrial expansion, in progress and planned, is still heavy and, we believe, well founded.

"While considerable new cement capacity has been provided in this section since the war, there is probably room for a little more in one or two localities."

A large company with plants east of the Rocky Mountains says:

"Once again we in the cement business found ourselves in a seller's market in 1952. We believe industry shipments this year will total more than 245 million barrels, compared with 241 million last year. This will be the eighth consecutive year in which shipments have exceeded the previous year.

"There was no over-all shortage of cement this year, in spite of strikes of two months' duration at four of our plants and strikes at other plants. Some areas experienced a deficiency but construction needs were taken care of by shipments from surplus areas. There were shipping delays occasioned by a peak demand during the highly active shipping season when everyone wanted cement at the same time, but this was not a question of cement shortage—it was a problem of shipping ability.

"In our opinion the future of the cement industry is very bright. We used to think of 190,000,000 barrels of shipments as being an average year. Now we are thinking in higher figures. Of course, there will be peaks and valleys, but the long range market trend for cement should be up.

"So far as 1953 is concerned, we expect the dollar volume of construction to about equal that of 1952, with the physical volume slightly less. Increase in highway, commercial, hospital, institutional, and recreational construction, following an easing or elimination of controls on both construction, and materials, should offset a drop in industrial construction. All other types of construction should approximate the volume realized this year except non-farm housing, which may drop slightly. Of course, a worsening of the international situation would necessitate a radical revision of opinion."

A producer in the Pacific Northwest says:

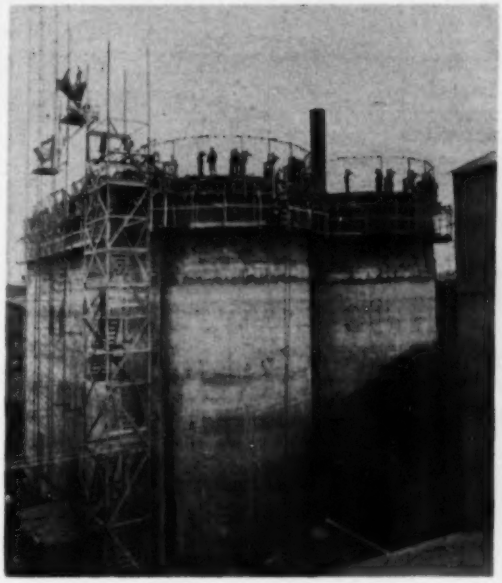
"In our territory, the cement demand was excellent during this year. All indications point to good demand in 1953. We are presently being handicapped by lack of power due to the exceedingly dry year in our territory. We are definitely handicapped by rising costs in all departments and the inability to get any price relief from the government. They inform us that the cement industry is in excellent position, not taking into consideration the constantly rising costs we are subjected to."

A Midwestern producer says:

"As to 1952, we shipped all the cement we produced and were extremely short during the months of September and October. We were, however, curtailed to a considerable extent by reason of the steel strike which shut us down during the months of June and July, neither producing nor shipping during that period.

"As to 1953, we look for another good year, hoping to sell our full capacity again. We look for a great many schools to be built all over the country inasmuch as they seem to have gotten behind. We are of the opinion that house building and perhaps commercial building will be down over this year but it still should be a more or less good year. It is our opinion that the highway work will offset any loss in home building.

"There are three states, not too far from us, building through highways next year which should take up any slack and probably create a shortage in those sections, these being New York, West Virginia and Ohio; this in addition to regular highway work, which is really ten years behind and requiring a tremendous amount of cement."



Shown near completion are the six new raw material storage silos which are part of an expansion program at the Northampton, Pennsylvania, facilities of the Dragon Cement Company.

A large company operating throughout the East says:

"With respect to conditions in the cement industry and what the future holds for it, you probably know as well as we do that 1952 was a banner year for the cement industry, and for our part we think that 1953 is going to be a very good year. In any event, even if business falls off some, we think the cement business will not decline more than 5 or 10 percent at the most. Beyond 1953 we hesitate to make any predictions."

A company operating widely east of the Rocky Mountains says:

"It is our opinion that conditions in the industry at the present time are quite favorable. We feel that the coming year, while it may not be a record one, should be a prosperous one for the construction industry, through which the cement industry should benefit.

"There were no really significant developments in the industry in 1952, although it benefited by increased capacity of approximately 9,000,000 barrels. Actual production, however, did not reflect this increase in capacity, but it should be made available in 1953—thus relieving, at least in part, the difficulty experienced in making all cement available that was needed.

"Production was handicapped to a considerable extent by strikes, particularly east of the Mississippi, where it is estimated that labor difficulties resulted in a production loss of 3,000,000 barrels. . .

"There was no movement in the prices at which this corporation's products were sold because of Government controls."

An Eastern producer says:

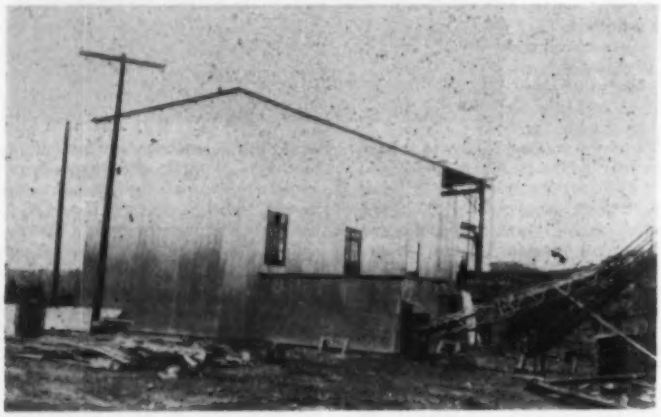
"In our opinion—in the territory served by us—the demand for cement will continue unabated for some time to come. Never in the long history of this company has this product been in such tight supply as in the second half of the current year. Strikes against certain mills, with resulting loss of production, undoubtedly contributed to the shortage, but so great was the demand for cement during 1952 that even with full production it seems unlikely that it would have been possible to maintain prompt shipping schedules at all times. Clear, dry weather in our area, for another thing, tended to maintain and prolong the shipping season.

"Big highway programs, public works, and defense needs, together with normal civilian requirements, indicate that 1953 will be another capacity year for the cement industry. One 'trend' we have noticed in our own business is the increasing number of ready-mix plants, a development which, generally speaking, should mean that cement demands will be spread more evenly over the whole year instead of being concentrated in a certain few months, as has usually been the case in the past. We consider this a healthy situation.

"Another trend is the greater mechanization of cement plants in an effort to compensate for higher taxes and wages, and the rising price of raw materials and fuels."

The most serious handicap to the production of cement in 1952 was apparently not the prolonged steel strike, serious though it was, but the widespread and prolonged strike in cement plants during the Spring and

Views at the shale quarry of the Huron Portland Cement Co. at Alpena, Mich., showing the crushing and screening building and the car-loading conveyor system.



Summer. These strikes affected a large number of plants in the Middle West and East during the usual peak operating season and are variously estimated to have caused a direct loss of from 3,000,000 to 10,000,000 bbl. of cement production. The duration of these strikes was from two to nine weeks at different plants. Car, fuel, and labor shortages appear to have been less serious than in some recent years.

Producers answering our questionnaire feel that it will be less difficult to get materials and equipment for expansion and operation in 1953 and that labor supply will be adequate.

One says, "We look forward to at least a reduction in governmental regulations in the coming year, and on this basis we don't expect too much difficulty in procuring materials and equipment. Also, we believe our labor supply will be adequate."

On the subject of shortages one large company in the Central states says:

"On the matter of shortages, we assume you have in mind the inability of the industry to supply the demand during the summer and fall of 1952. In the Middle West and in the East this, in our opinion, was brought about wholly by production losses due to strikes which occurred during Spring and Summer. We estimate that nearly 10 million barrels of production was lost in 1952 by reason of strikes in these areas."

One Midwestern producer says:

"We are unable to foresee any handicaps to production, as construction restrictions are eased and labor rates have kept pace with rates being paid in other industries. In addition, workers in the cement industry are now receiving substantial fringe benefits, such as pensions, group insurance, shift differentials, holiday pay, vacation pay, etc., which has now become important enough to create an incentive for labor to stay with their jobs."

A California producer says:

"During 1952 there were no important handicaps to production aside from increased costs. . . . Labor was generally in good supply during the year and shortages of materials, equipment, or rail cars posed no particular problem at any time. As in the past, bulk cement shipments and deliveries by truck accounted for a very large majority of our total sales. The actual percentages of bulk *versus* sack and truck *versus* rail shipments were approximately the same during 1952 as in the previous year."

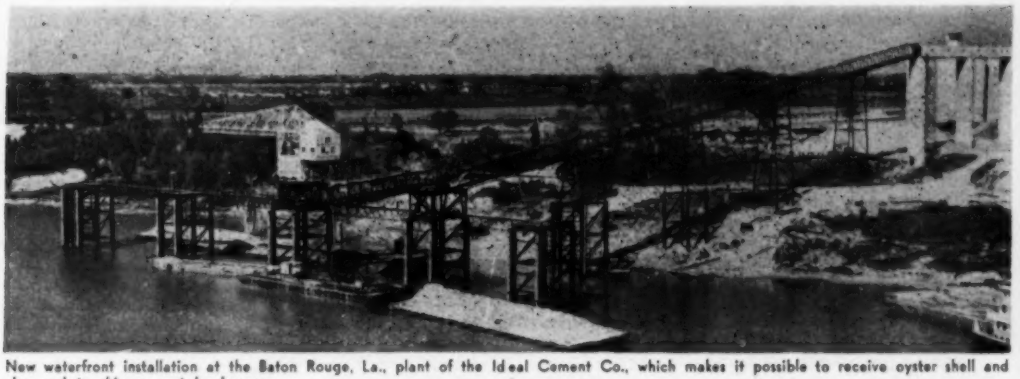
## VALUE

Revised government figures show that the value of the 241,153,000 bbl. of cement shipped in 1951 was $613,170,483 or $2.54 per bbl. at the plant. This was an increase of 6 percent in volume, 14½ percent in value and 8 percent in price over the figures for 1950, when shipments were 227,757,000 bbl.; value $535,321,123; and price, $2.35 per bbl. Again no official information is available on the net mill value of all the cement shipped in 1952, but the fact that shipments were up about 3½ percent over 1951 makes it certain that an all-time record was established for the seventh consecutive year. The latest government figures for the first 11 months of 1952 show that the mill price during that period was $2.55 per bbl. Estimating on the basis of other information it seems probable that the average value for the year was $2.55 per bbl. or 1 cent over 1951. This would give 1952 shipments of about 249,000,000 bbl., an estimated value of about $635,000,000 or 4 percent over the 1951 total.

## COSTS AND PROFITS

Again in 1952, as in every year since the end of World War II, the cost of producing cement went up more than the prices received for cement. Again there is no certainty that the situation will be any different during the coming year. Again there were increases in wage rates, in the cost of fuel, supplies, equipment, and in nearly every other item entering into the cost of manufacturing cement. Again these increases were probably partly balanced by the benefits of percentage depletion and increased efficiency within the industry due to the extensive plant improvements and the new plants completed during the year. On the debit side, however, was the fact that the continuing excess of demand over supply again forced producers to operate, at high cost, obsolete plants and equipment which would not be used in normal times and to push other operating equipment beyond its rated capacity, which is also costly.

Cement prices, from the very incomplete information available, did increase very slightly during 1952 but they still lag far behind all other building materials by any long- or short-term comparison. There has



New waterfront installation at the Baton Rouge, La., plant of the Ideal Cement Co., which makes it possible to receive oyster shell and clay and to ship cement by barge.

been no real price relief in this industry for two years.

The information on profits made by cement companies in 1952 is necessarily very incomplete at this time, but enough figures are available on the early part of the year to indicate a definite trend. These figures leave no doubt that profits are continuing at a slower rate the downward trend begun sharply in the latter part of 1951, due largely to higher taxes, and accentuated by the growing disparity between costs and selling prices.

According to our information on a representative group of cement companies including some of the largest as well as the smallest (for the first three months of 1952 in some cases, and for the first 6 or 9 months in others), show that while the dollar volume of their sales was up about 10 per cent over the same periods in 1951, their net profits were up only about 7 per cent. Put in another way, net profits in the early part of 1952 were 11 per cent of dollar sales, compared to 12 per cent in 1951.

More nearly complete data show that in 1951 sales were up 12 percent, but net profits were down 11 percent, compared with 1950. In other words, net profits were 14 percent of sales in 1951, compared to over 17 percent in 1950.

There is no doubt that the cement industry as a whole is operating at the highest break-even point in its history and even a moderate drop in demand from present peak levels would be disastrous. Prompt and substantial increases in the price of cement are vitally necessary if the industry is to be expected to continue its expansion for future needs.

On the subject of pricing methods one large producer says:

"The industry still needs a legislative classification of the pricing laws, so that it may return to competitive pricing based on the lowest delivered cost for its products at the various points of use. During the current period of high demand, customers do not complain too much about paying premium prices to the more distant shippers. But upon return of a buyers' market, resistance to premium prices will prevail once again, and this will present a serious problem to most of the companies in the industry. Most of these companies just do not believe that the latest court decisions in more or less similar pricing cases give them the right to consistently meet lower delivered prices of competitors at the various points of use. Clarification by statute seems to be the only satisfactory solution to the problem."

A Midwestern producer says:

"Our costs have increased in common with the rest of the industry, especially during the current year, when substantial wage increases were granted. The industry, by and large, has had no price relief for the past two years and to my mind, none is in prospect until 1953—perhaps after the Price Control Law expires. For this reason, our profits have been squeezed and are not sufficient to provide the purchase price of substantial amounts of new equipment which we need for replacement purposes and to expand production."

One large producing company operating in the Central and Southern states, after stating that 1953 should see a continuation of the present high level of demand for cement, said:

"On prices for our products, we do not look forward to any substantial upward revisions. It seems to us that price movement in our industry will depend largely on what is done with the existing so-called excess profits tax. If the excess profits tax is allowed to expire, it may well be that there will be few changes in prices.

"It is a fact, however, that present selling prices are on the low side. This is despite the fact that most of the companies are showing substantial earnings. The explanation lies in the industry's continuing need for large-scale replacements and improvements. These replacements cost today three or four times the original cost. As a consequence, replacements cannot be wholly financed out of amortization funds. A substantial portion of the cost must come out of retained net earnings. This holds down dividends to the owners and, at the same time, builds up the investment in the business to the point where the current earnings level becomes inadequate. It is safe to say, we think, that many plans for replacements and rebuilding are being shelved because sufficient funds are not available or because the earning level does not adequately support the enlargement investment involved."

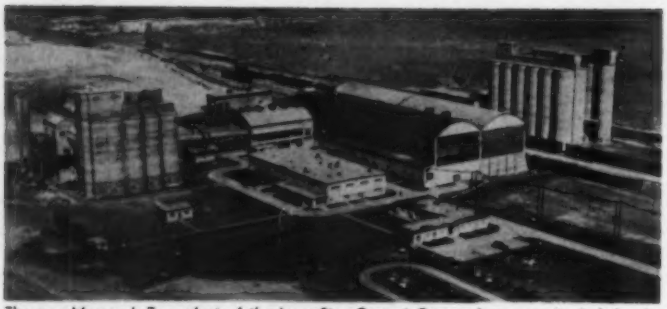
Another producer says:

"Of course, costs have increased and prices have not kept pace with increased costs; however, insofar as our company is concerned, installation of longer kilns has helped to materially reduce our costs."

A Southeastern producer says:

"The increase in labor and other production costs has not been paralleled by compensatory increases in sales prices. Profits have been held up by maximum divisor, but the steady, upward trend of the break-even level demands careful thought and planning for the time when the divisor may shrink. It is time to temper optimism with prudent forethought. The statement often heard today (revived from 1928) that 'there will be no more depressions, we have learned how to lick them' does not reflect prudent thinking.

"Another similar statement, 'the government will spend billions to ward off any recession,' is not comforting. By all business standards, the government is insolvent now. With its only income, from taxes, shrinking, one wonders a little where these billions will come from.



The new Maryneal, Tex., plant of the Lone Star Cement Corp., where capacity is being increased 50 percent by the installation of a third kiln.

"The wealth of this country is in its industrial plants. By keeping these tools sharp and effective during good times, the depth and duration of slumps or recessions or depressions can be minimized."

A Midwestern producer says:

"Naturally, costs of all description —including, of course, labor—have gone up tremendously, and we have had no way to offset this by increases in prices. We need an increase in price badly and hope that we will be able to get some relief before too long."

Another Midwestern producer says:

"The cost of producing cement has increased materially. In our case at least the cost of labor has increased, which we have not been able to pass to the consumer. We feel that this is very unfair, for the reason that we have to pay for all of the new construction work which we did in 1952; and since we have no securities on the market, we must pay for it out of our depreciation money and our earnings."

## CAPACITY INCREASE

The cement industry in the United States and its possessions in 1952 again increased its capacity considerably but probably less than in 1950 and 1951. Three new plants went into operation during 1952; at least 21 completed major expansion and improvement programs; and dozens of others made less extensive improvements, some of which did not materially affect capacity. As usual our information on plants in the last two categories is incomplete, particularly in the last one. On the basis of information available, however, we estimate that these plants have added a total of about 10,000,000 bbl. annually to the capacity of the portland cement industry. How much of this new capacity replaced obsolete facilities we have no way of knowing, but about one-third might be a good guess. Altogether 13 new kilns were installed, of which only a few are known to have replaced old kilns that have been or will be dismantled. Much other equipment was also installed, including over 30 grinding mills, of which only a few also are known to be replacements. The cost of the work reported to have been completed in 1952 was nearly $60,000,000.

No complete existing plants are known to have been taken out of operation in 1952, except the dry facilities replaced with new wet process equipment by the Alpha Portland Cement Co. at Jamesville, N. Y.

Official figures on the capacity of the cement industry are as follows:

| | |
|---|---|
| End of 1948 | 254,272,378 bbl. |
| End of 1949 | 258,948,399 bbl. |
| End of 1950 | 259,448,000 bbl. |
| End of 1951 | 271,873,000 bbl. |
| End of Oct., 1952 | 280,808,000 bbl. |

We estimate that the capacity of the industry at the end of 1952 was about 280,000,000 bbl., with 157 plants in operation at that time.

The three new plants which went into operation in 1952 are those of the Lehigh Portand Cement Co. at Bunnell, Fla.; the Lone Star Cement Corp., Maryneal, Texas; and the Alpha Portland Cement Co., Jamesville, N. Y. The Alpha plant is actually a new plant as it uses the wet process and almost entirely replaces the old dry process plant at the same location.

## FUTURE INCREASES

As has been stated, the information available on the amount of work under way and planned is incomplete, and it is uncertain how much of it will be completed in 1953. It is certain that no new plant or major improvement program not already under way can be completed in 1953 due to the many difficulties encountered under present conditions. There is only one new plant known to be under construction, that of the Missouri Portland Cement Co., Sugar Creek, Mo., but work is expected to start soon on one or two others.

There are also the usual rumors about new plants to be built in South Carolina, North Carolina, Minnesota, Texas, California, Hawaii, etc.

A considerable amount of plant improvement and expansion is under way or definitely planned for completion in 1953. According to our incomplete information 23 plants have major programs under way or planned for 1953 completion. Dozens of minor programs are under way or will be started soon. These plants, with the new plants listed above, will install at least 15 new kilns and 20 grinding mills. The total increase in cement producing capacity in 1953, from the above, would be 11,000,000 bbl. annually. About two-thirds or 7,500,000 bbl. annually would be a conservative estimate of added capacity after deducting replaced equipment taken out of operation or dismantled. This would increase the productive capacity of the industry about 3 percent to a new high of about 288,000,000 bbl. at the end of 1953. The cost of the work known to be under way or definitely planned for 1953 is over $40,000,000.

There are also under way or planned, many other extensive improvement and expansion programs which will not be completed until 1954 or later.

A few months ago the Defense Production Administration announced as one of its goals for industrial expansion the production of an additional 6,500,000 bbl. of cement in 1953 to meet deficits in five areas. This amount would be in addition to the total national supply of about 261,000,000 bbl. previously estimated by DPA for 1953. The five areas and the amount of expanded capacity for each are: New England states area, 1,000,000 bbl.; the Carolinas, 1,000,000 bbl.; the Mississippi-Louisiana-Texas-Oklahoma area, 2,000,000 bbl.; the Minnesota-Wisconsin area, 1,000,000 bbl.; and the Oregon-Idaho area, 1,500,000 bbl. It was announced that sufficient applications for rapid tax amortization have been received for all areas except New England.

The government is also interested in getting a cement plant for Alaska, where cement is now expensive; and such a plant would also be a strategic advantage. The U. S. Geological Survey has located a number of suitable deposits, one in the Windy Creek area being considered the most desirable because of its accessibility to transportation and principal interior markets.

Late in 1952 it was reported that the establishment of a new cement plant at McCurtain, in east central Oklahoma, was under consideration and that the Federal Government

had issued the proposed plant a 60 percent accelerated amortization tax plan over a 5-year period.

There are also rumors about a proposed new plant in Texas. A DPA certificate of necessity for $8,081,763 has been awarded to Cameron McElroy Jr. and F. M. Reeves & Sons, of Reeves, Texas, for the construction of a plant.

The proposed plant for Hawaii has apparently gone no further than the awarding of a DPA certificate for $4,308,303 to the Hawaiian Cement Co., Honolulu, Hawaii.

The American Cement Co., Holly Hill, S. C., has also been awarded a DPA certificate for $6,825,000 for its proposed new plant.

## CHANGES IN OWNERSHIP

Again in 1952 there were few changes in ownership of cement companies in the United States. The Ideal Cement Co., Denver, early in the year completed arrangements for an exchange of stock with stockholders of the Pacific Portland Cement Co., and that firm is now operated as a subsidiary. Pacific Portland has three cement plants, at Redwood City and San Juan Bautista, Calif., and at Gold Hill, Ore., with a rated capacity of 4,000,000 bbl. annually. These plants bring the total number of cement plants operated by Ideal to a total of 15, with an annual capacity of 23,000,000 bbl., making it certainly the fourth-largest (perhaps the third-largest) producer in the United States.

In 1952 the Ideal Cement Co. also formed a subsidiary corporation, Great Western Aggregate, Inc., which will locate and develop new sources of raw materials for the production of cement and aggregates.

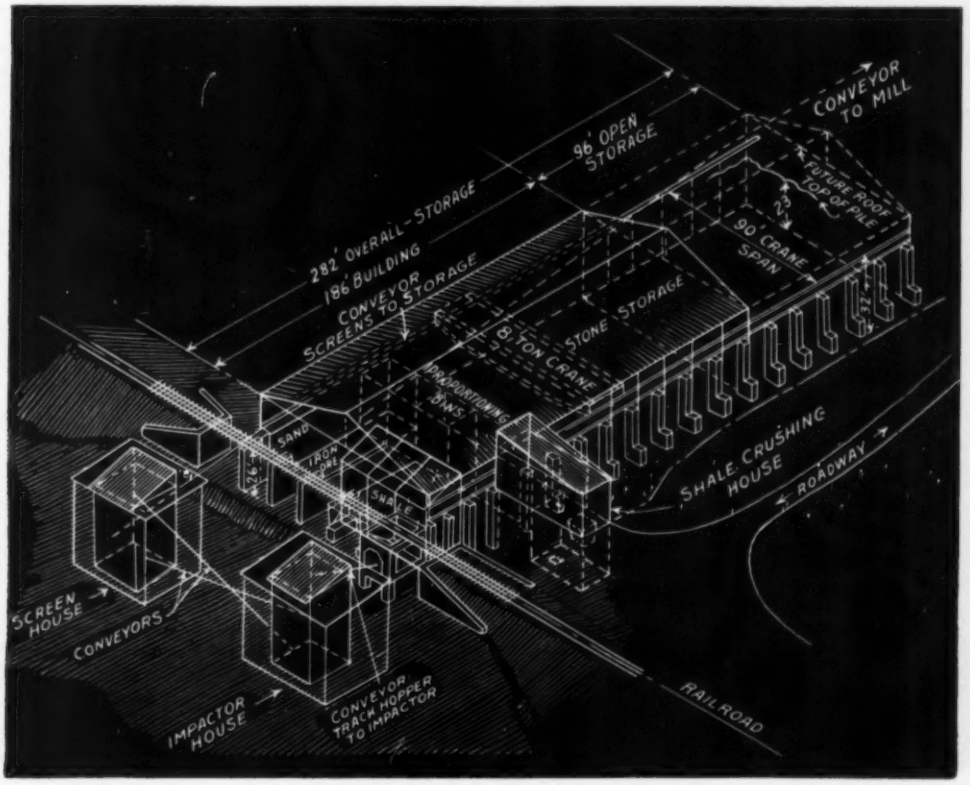
The Permanente Cement Co., late in 1952 purchased the business and assets of the Kaiser Gypsum Division of the Henry J. Kaiser Co. It is now the Kaiser Gypsum Co., a wholly-owned subsidiary of Permanente. The Pacific Coast Cement Co., an inactive subsidiary, was also merged with Permanente.

## TRUCK DELIVERIES

There has no doubt been a very definite speeding up of the trend toward truck shipment of cement in the last year or two. This is, however, not a general trend, according to letters from producers, as in some areas it is stated that there is no demand or economic justification for such shipments. Only in California, apparently, do truck shipments predominate by a wide margin. The general feeling in most sections is that truck shipments for short hauls are bound to increase for economic reasons and that the amount of long-haul business the railroads continue to lose will depend largely on whether or not their rates are kept competitive. Competitive advantages, it is believed, determine the choice of method of shipment. One large producer feels that, until trucking rates are regulated like railroad rates and a decision is arrived at on pricing practices, the trend will continue toward truck shipments.

One large company operating in the Central and Southern states says:

"We are happy to say that there is still very little competition on cement deliveries by truck in the areas in which we sell our products. We continue in the belief that there is very little economic justification for less-than-carload distribution by cement companies. We have steadfastly




Drawing of the raw material storage, handling, and proportioning system being installed at the Kingsport, Tenn., plant of the Penn-Dixie Cement Corp.

Aerial view of the Belleville, Ont., plant of the Canada Cement Co., where capacity is being expanded 50 percent by the addition of a third kiln.

adhered to our policy of wholesaling cement in carload quantities, leaving it to our customers, the building material dealers, to provide the time and place utility at the job sites for less-than-carload quantities."

A large company operating plants throughout the areas east of the Rocky Mountains says that because of exorbitantly high freight rates and the increase in competitive conditions due to trucking, it plans to inaugurate trucking deliveries from one of its Midwestern plants. It also states that the trend to truck deliveries seems to be spreading quite rapidly in western Pennsylvania, Ohio, Illinois, and Indiana.

A Midwestern producer says:

"Percentage-wise increases in freight rates on cement have increased the handicaps of long-haul cement shippers, such as ourselves, in competing with short-haul cement shippers; and the trend is definitely to trucking in our area, as well as in many other areas. Many meetings have been held with representatives of the railroads in an effort to obtain readjustment of our cement rates and restore the same relationships that existed on June 30, 1946, before the series of percentage increases on cement rates began; but the matter is still under consideration. In the event the railroads do not re-establish the June 30, 1946, relationships in cement rates, we predict that in this area delivery of cement by trucks will become widespread within the coming year."

A California producer says:

"In our distribution area the trend has been more and more to bulk cement delivery, particularly by truck, as rail facilities are quite limited."

A Midwestern producer says:

"The trend of shipments is more and more every day to bulk cement and for truck delivery. Some companies already are delivering almost 10 percent of their output by truck. This trend was caused mainly by the extremely poor service the railroads furnished and, on the other hand, the quick and economical service that can be given with trucks."

One of the producers in northern California says:

"The only comment I have to make regarding the cement industry, at this time, is that which concerns the trend of users in northern California from sack to bulk and from rail to truck transportation. It might be interesting for you to know that since 1947 our bulk shipments have gone from 47 percent of our total business to 85 percent through November of 1952, and that our shipments by truck have risen from 64 percent in 1947 to 94 percent through November of 1952."

A Midwestern producer says:

"As to the trend towards truck shipments, this is a pretty difficult thing to predict. There, of course, has been a trend towards truck shipments, but in order that truck shipments may be able to continue there must be a very large expenditure towards a road construction and road repair program. In some cases the railroads have been reducing their freight rates in order to meet this truck competition, which may at least reduce the growth of the truck transportation.

"It must also be remembered that there will be an increase in the cost of operating trucks in the way of some sort of tax, either additional gasoline tax or some other form, which in time may so increase the cost of trucking transportation that there may be a shift back to the railroads, although this, again, is difficult to predict."

## MISCELLANEOUS

Over the years there have been few radical or abrupt changes in the methods or in the equipment used for manufacturing cement. Changes in method have been gradual and changes in equipment, while in some individual instances quite radical, have usually affected only a small part of the cement plant flow. Cement plants have for many years been divided into two basic groups by method used—wet process and dry process—with minor variation in each. Now along comes a new process that would eliminate from the wet process the greatest problem, that of getting rid of the water. In this new process, which is described in an article in this issue for the first time anywhere, water has been eliminated from the wet process and a non-aqueous liquid substituted for it. This method has not yet passed the pilot plant stage but it holds much promise and interesting possibilities for the cement industry. For further details see this articie.

A number of producers commented on the trend toward fewer and larger units of equipment in cement plants in order to save labor and reduce the cost per unit of output. Larger kilns and mills in the plant, larger draglines for stripping and larger trucks and shovels in the quarry were mentioned. Several producers also mentioned the rotary type of blasthole drill as contributing to lower production costs.

## PLANT EXPANSION

**Alpha** The Alpha Portland Cement Co. late in 1952 completed a $3,000,000 program at its Jamesville, N. Y., plant, which doubled its capacity to 800,000 bbl. annually. The result is actually a new plant as the old 1200-bbl. per day dry process plant was replaced by a wet-process operation with a new 11- by 375-ft. Allis-Chalmers kiln, 8- by 40-ft. Compeb mills in both the raw material and clinker grinding departments, a new covered clinker storage area, new facilities for the shipment

of bulk cement, etc. Only the existing cement silo storage and packing facilities and a few other items were retained. This work was done by the Macdonald Engineering Co. The removal of some parts of the old plant which interfere with the landscaping of the new plant is near completion.

At its Ironton, Ohio, plant Alpha completed a $750,000 improvement program which included the erection of new cement storage silos, and new packing and bag storage buildings. The new storage facilities make it possible to operate the plant the year around.

**Arizona** The Arizona Portland Cement Co., a wholly-owned subsidiary of the California Portland Cement Co., added a second kiln and other equipment to double the capacity of its plant at Rillito, Ariz. The original 2,000-bbl. dry process plant was completed in 1951.

**Bessemer** The Bessemer Limestone & Cement Co. improved its operations at Walford Station, Pa., by the addition of a 12-cu. yd. Bucyrus-Erie 500W dragline. This is being used to remove overburden at the quarry and supplements two tower excavators now at work there. This installation was made necessary by the increasing depth of the overburden.

**Calaveras** The Calaveras Cement Co. in December, 1952, completed another step in the program of expansion carried on since the war at its San Andreas, Calif., plant. Early in 1951 a certificate of necessity was obtained from DPA for further extensions to cost $2,235,000. In 1952 installation was completed of three 9- by 9-ft. preliminator ball mills, a 11¼- by 360-ft. Allis-Chalmers kiln with an electrical precipitator, a 4½- by 85-ft. air-quenching cooler and extensive equipment in the quarry. Capacity of the plant was increased 1,100,000 bbl. annually to a total capacity of 3,000,000 bbl.

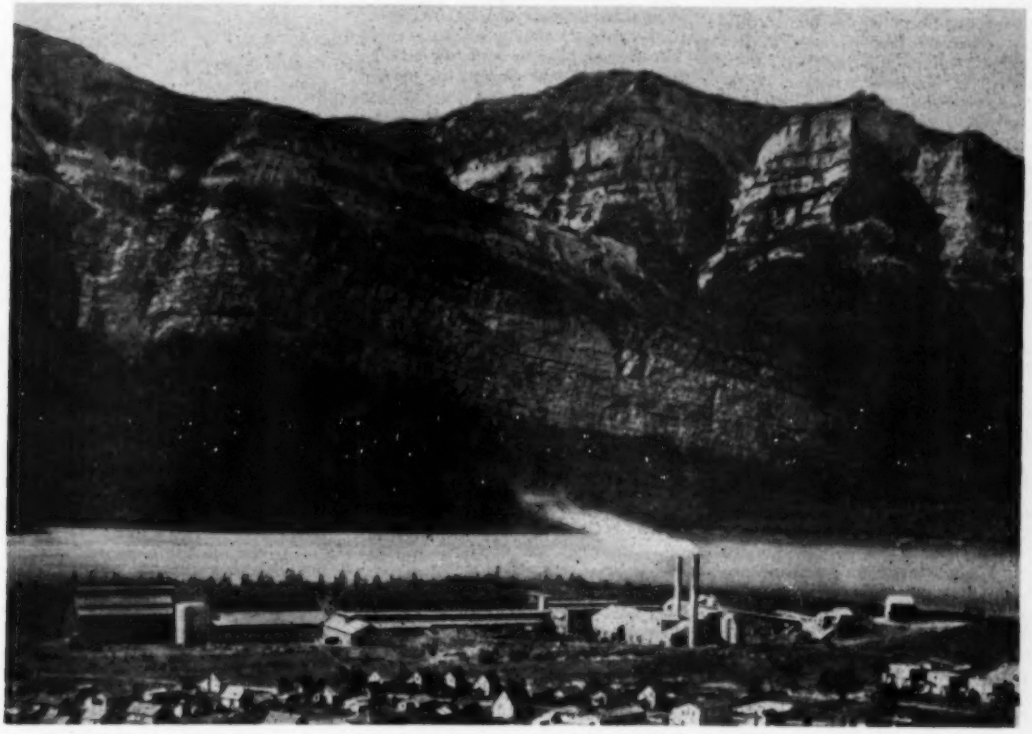
Only minor expansion and modernization projects are contemplated for 1953 except in the field of transportation. The company may enlarge its loading facilities and enlarge its transport fleet.

**Carolina Giant** The Carolina Giant Cement Co., Harleyville, S. C., which in 1949 converted a war-time alumina plant to cement manufacture, in September, 1952 completed a $4,500,000 expansion program which added a million barrels to the original 800,000-bbl. annual capacity. This company is a subsidiary of the Giant Portland Cement Co., Egypt, Pa.

This program included a 11¼- by 425-ft. kiln which supplements the original 9½- and 11½- by 335-ft. kiln. A new crusher station was built in the quarry with an 800-ft. belt carrying the crushed marl to the raw department which is also entirely new. The finish department was enlarged by the addition of a 9½- by 11-ft. mill from the former raw department.

**California** The California Portland Cement Co. is rumored to have been active in recent years in expanding and improving its operations at Colton, Calif., but no definite information is available. Early in 1952, however, it was announced that a new dust collecting system will be installed at a cost of about $1,000,000. After making successful pilot tests it was decided to install a series of units.

**Dewey** The Dewey Portland Cement Co. has near completion at its Davenport, Iowa, plant another and very important step in the expansion program which has been carried on since the war. When completed in the Spring of 1953 this



**Aerial view of the Exshaw, Alberta, plant of the Canada Cement Co. Here capacity was nearly doubled by the installation of a new kiln and other equipment.**

program will increase the capacity of the plant to 12,000 bbl. per day and will greatly improve its efficiency. The new equipment installed includes two 11- by 375-ft. Allis-Chalmers kilns and an air-quenching clinker cooler. One of these kilns will be in operation soon and when the other is completed these two, with the one installed in 1950, will be operated, with two of the old kilns as required, on slurry. At that time it is planned to discontinue the use of waste heat power and use purchased power through a complete new electrical distributing system. This consists of two complete 69,000-v. high tension lines and a complete high tension switching station with a 3-phase, 10,000 kv.-a. transformer and the necessary load center stations. The new building housing the two new kilns is under construction. In 1953 a 42-in. Allis-Chalmers gyratory crusher will be installed on the second level of the quarry. This is identical with the one on the first level.

Other installations made at the Davenport plant in 1952 include: a new Joy 58BH blast hole drill which replaced four well drills; a DW20 Caterpillar wagon, complete with a 24-cu. yd. Easton side-dump trailer for use in stripping overburden and hauling stone to the crusher in the quarry; two new Symons cone crushers, complete with Pioneer feeders and conveying equipment; two additional St. Regis bag packers, complete with dust collectors and facilities to load four cars at a time, installed in a new 4-story reinforced concrete building.

At the Dewey, Okla., plant the only installation in 1952 was a new boiler. A new rod mill is being installed for making special cements.

In 1952 Dewey acquired title to land in St. Paul, Minn., and a distributing plant at that location is now under consideration for probable 1953 completion. It has not been decided whether this plant would be a clinker grinding and cement distributing setup or a cement storage and distributing plant. If it is decided to grind there company barges would move clinker from Davenport to St. Paul at a very material saving in transportation costs over rail shipment. Clinker would be shipped in open hopper-type barges which the company now owns, but if a cement storage plant only is decided upon it will be necessary to acquire a fleet of specially-constructed bulk cement barges.

**Dragon** The Dragon Cement Co., formerly the Lawrence Portland Cement Co., in 1952 completed the installation of a new 11- by 356-ft. kiln at its Thomaston, Pa., plant which replaced the smaller of the two kilns previously in operation. The capacity of the plant was increased from 1,200,000 to 1,800,000 bbl. annually. Additional grinding equipment will be installed in 1953 at a cost of $400,000.

At the Northampton, Pa., plant $2,500,000 is being spent for new storage facilities and five new grinding mills. This work will be completed early in 1953.

**Federal** The Federal Portland Cement Co., Inc., Buffalo, N. Y., is completing additional silo storage with a capacity of 100,000 bbl. Provisions are made for truck loading.

**General** The General Portland Cement Co., which in 1951 completed its new No. 2 plant at Dallas, Texas, in 1952 increased the capacity of its Tampa, Fla., plant by 1,250,000 bbl. A new 11¼- by 425-ft. kiln and additional grinding facilities were put in operation in July. This plant now has an annual capacity of 3,600,000 bbl.

**Giant** The Giant Portland Cement Co., Egypt, Pa., is now in the process of installing a seventh kiln of the same size as the existing ones. When in operation early in 1953 this kiln will add 200,000 bbl. to the annual capacity of this plant. There is ample raw and finish mill equipment to take care of this extra output.

**Hercules** The Hercules Cement Corp., Philadelphia, Pa., is reported to have a program under way which includes two rotary kilns of 1,000,000 bbl. capacity each.

**Huron** After having expanded its productive facilities steadily since World War II the Huron Portland Cement Co. more or less rested on its laurels in 1952. In that year just over 7,200,000 bbl. of clinker were produced at the Alpena, Michigan, plant, or over 20,000 bbl. per day, with a grinding capacity of 28,000 bbl. daily during peak months. In the month of October 860,000 bbl. of cement were ground. These figures certainly put this plant in the running for the title of largest plant in the world.

At Alpena the shale quarrying operation was completely revised in 1952. A crusher was installed on the quarry floor and stocking out and reclaiming belt systems were built for loading cars which take the shale to the dryer building at the mill. A fourth vessel was also added to the company's fleet of ore carriers and this will be ready for service in April, 1953. The M/V Paul H. Townsend successfully completed the trip from Hoboken to the Great Lakes by way of the Mississippi River and the Chicago Drainage Canal and is now at the Calumet Shipyard in South Chicago, where her cabins are being rebuilt for Great Lakes service. All work on the cargo carrying features as well as loading and unloading has been completed. This ship will replace the Samuel Mitchell, which will be laid up until current expansion is completed.

The company has placed orders for four new 10- by 153-ft. Allis-Chalmers kilns which are scheduled for delivery beginning the middle of April. Two new Bradley mills, two 8- by 37-ft. Allis-Chalmers finish mills, two 9½- by 15-ft. Allis-Chalmers raw mills and two new scale installations, one for raw and one for finish production, are also on order for early delivery. This project also involves the construction of an entirely new clinker storage layout for stocking out and reclaiming about 2,000,000 bbl. of clinker. Contracts have also been let for the necessary buildings.

**Ideal** The Ideal Cement Co., Denver, Colo., which for the last 7 years has probably led the cement industry in its rate of expansion, kept its capital expenditure program at a rather low level in 1952, the objective being to complete this very substantial program. The principal item in that year was the completion of a waterfront installation at the new Baton Rouge, La., plant, which makes possible the receipt of oyster shell and clay and the shipment of cement by barge. This will effect substantial handling economies.

Ideal's plans for 1953 are not completed but a larger program is anticipated than in 1952. Projects on this drawing board include rehabilitation of the Gold Hill, Oreg., plant, new equipment for the marine operations at Redwood City, Calif., improved blending of raw materials at the Boettcher, Colo., plant, additional slurry and kiln feed storage at the Ada, Okla., plant, as well as improvements in the packing facilities at a number of locations.

According to earlier reports, the Redwood City plant was to be expanded at an estimated cost of $3,500,000 and the Gold Hill plant at a cost of $3,000,000. Both these plants and the one at San Juan Bautista, Calif., were a part of the Pacific Portland Cement Co., which is now a subsidiary of Ideal.

**Lehigh** No complete information has been received concerning the activities of the Lehigh Port-

land Cement Co. in 1952 or its plans for 1953, but it is known that its new $11,000,000 plant at Bunnell, Fla., is substantially completed. This 1,400,000 bbl. plant was designed to use coquina shells and clay as raw materials. F. L. Smidth & Co. designed this plant and supplied most of the equipment including the kilns and mills. Work at other plants scheduled for completion in 1952 totals about $3,000,000. This included a storage for shale and other materials and raw material handling and proportioning facilities at Birmingham, Ala.; a new shale crushing plant at Buffalo, N. Y.; a change from diesel to purchased power at Iola, Kansas; a new Western Precipitation Cottrell electric precipitator and other dust collectors at Metaline Falls, Wash.; a new crushing plant and the replacement of rail by truck haulage at Ormrod, Pa.

Plans were announced early in 1952 for the construction of a new plant at Monticello, 25 miles west of Minneapolis, Minn., with work to begin in 1953. Other plans include doubling of the capacity of the Alsen, N. Y., plant and modernizing the Fogelsville, Pa., plant.

**Lone Star** The new plant of the Lone Star Cement Corp. at Maryneal, Texas, can be considered as a 1952 operation as the first shipments were made on January 22, 1952. This plant is a twin, except for minor details, of the company's new plant at Lone Star, near Roanoke, Va., which went into operation in June, 1951. Both are 2-kiln dry-process operations with capacities of 1,500,000 bbl. annually. The raw mix and cement silos at Maryneal were built by the Macdonald Engineering Co.

It was recently announced that, because of the satisfactory demand for the product of this plant in west Texas, it has been decided to add an additional kiln, increasing the capacity to 2,250,000 bbl. annually. The two original kilns are 10- by 340-ft. Allis-Chalmers units. With the completion of this installation the Maryneal plant will represent an investment of about $13,000,000.

Lone Star also has under construction at Aratu, Brazil, a new 750,000 bbl. cement plant. This will be operated by Cimento Aratu, S. A., in which Lone Star's Brazilian subsidiary, Companhia Nacional de Cimento Portland, has a majority interest.

**Marquette** The Marquette Cement Manufacturing Co., which late in 1951 completed a new 1,000,000-bbl. plant at Brandon, Miss., and in that and earlier years made extensive additions to its other plants, made only minor changes in 1952. The program planned for 1953 will be much more extensive and will involve some capacity increases. More than $2,250,000 will be spent in 1953 on major improvements at five plants. Involved will be capacity increases effected at the Cape Girardeau, Mo., and Cowan, Tenn., producing plants. Three new and modern packing plants will be built at St. Louis, Memphis, and Nashville to replace old and obsolete facilities at each of those locations. Cement storage capacity at Memphis will be doubled, a new dock will be built at St. Louis, and quarry and plant improvements will be made at other plants.

At Cape Girardeau annual clinker-producing capacity will be increased about 100,000 bbl. to 1,500,000 bbl. annually, by the installation of equipment designed to improve rock crushing and kiln burning efficiency. At Cowan, Tenn., new equipment will increase clinker producing capacity at least 50,000 bbl., bringing the annual capacity of this plant up to nearly 1,000,000 bbl. Both jobs are planned for completion before the peak months of demand.

In the $500,000 modernization program for the St. Louis distributing plant completely new packing and loading facilities will be provided and the old docks will be replaced with a new permanent dock and captive barge arrangement on which will be installed all machinery for the transfer of cement from river barges to storage silos. At Memphis the program will be the same but there will also be erected four additional 10,000-bbl. storage silos.

**Medusa** Late in 1952 the Medusa Portland Cement Co. completed two major plant projects in its long-term expansion and improvement program; these were at Manitowoc, Wis., and Silica, Ohio. At the Manitowoc Portland Cement Co., a subsidiary, about $2,500,000 was expended to increase the capacity of this plant about 50 percent. Installed were: a fourth kiln, a 10- by 340-ft. Allis-Chalmers unit; a 4½- by 10-ft. air-quenching clinker cooler; a No. 85 Smidth Kominuter and a 7- by 22-ft. tube mill in the raw department; a Raymond direct-firing coal mill; a third Bradley Hercules mill and a third 7- by 22-ft. tube mill, each with a Raymond separator, in the clinker-grinding department; Buell dust collectors on the kilns; and a new 14- by 300-ft. concrete kiln stack.

The Silica, Ohio, plant was converted from the dry to the wet process and its capacity increased by 500,000 bbl. to 1,700,000 bbl. annually. Installed were: four large slurry blending and storage tanks; a Pennsylvania Impactor in closed circuit with vibrating screens; two new Bradley Hercules mills and a 7- by 22-ft. tube mill in the finish-grinding department, each in closed circuit with a Raymond separator. The installation of additional dust-control equipment is now being completed.

Medusa has no plans at the present time for additional plant improvements or expansion projects.

**Missouri** The Missouri Portland Cement Co. is reported to be going ahead with plans for a new 1,200,000 bbl. plant at Sugar Creek, near Independence, Mo. The existing old plant will be maintained and operated but may eventually be replaced by a duplicate new plant.

**Monolith** It is reported that the capacity of the Monolith, Calif., plant of the Monolith Portland Cement Co. was increased considerably in 1952. This plant suffered little damage or delay to production from two serious earthquakes which rocked that area a few months ago.

**Olympic** The Olympic Portland Cement Co., Bellingham, Wash., in 1952 was awarded a DPA certificate of necessity and has under way a program including the installation of two new grinding mills. These are expected to be in operation early in 1953.

**Oregon** The Oregon Portland Cement Co. was awarded a DPA certificate of necessity in 1952 but has delayed construction of its proposed new $5,000,000 plant at Portland, Oreg.

**Penn-Dixie** At the end of 1952 the Penn-Dixie Cement Corporation completed an expansion and improvement program that has been going on at its various plants for the last six years, at a total cost of over $13,000,000. At the Kingsport, Tenn., plant, which was converted from the dry to the wet process in 1951, further improvements running into 1953 will cost about $500,000. The work being done to the stone handling and storage system is expected to result in operating savings but will not increase capacity. Improvements to be made in other Penn-Dixie plants in 1953 will cost about $250,000.

**Permanente** The Permanente Cement Co. made no effort in 1952 to further increase its capacity but in many ways further

improved its competitive position. A distributing plant was built at Kodiak, Alaska, with two 3500 bbl. storage silos, which supplements those built at Anchorage and Fairbanks in 1951. These plants are served by LST's which bring bulk cement from the Seattle terminal. On August 1, 1952, Permanente took over the Kaiser Gypsum Co., which is now operated as the Kaiser Gypsum Co., Inc., a wholly-owned subsidiary of Permanente.

**Pittsburgh Coke** The Pittsburgh Coke & Chemical Co., Neville Island, Pa., in 1952 installed additional facilities for the loading of bulk cement trucks because of the growing trend toward that type of haulage in the Pittsburgh area. Now being installed are two preliminary clinker grinding mills which will increase capacity about 300,000 bbl. annually.

**Riverside** During 1952 the Riverside Cement Co. added facilities at its Oro Grande, Calif., plant which increased its capacity 1,600,000 bbl. annually. Two new kilns, two raw mills and a new clinker grinding mill were added. At the Crestmore plant a modernization program was begun which has been slowed up by the difficulty of procuring materials.

**Spokane** The Spokane Portland Cement Co. is reported to be contemplating an expansion program which will increase the capacity of its plant at Irvin, Wash., about 50 percent during the next 1½ years.

**Universal-Atlas** The Universal-Atlas Cement Co. has just begun work on the first phase of a modernization and rehabilitation program at its Universal, Pa., plant which was built in 1907. The program calls for the replacement of three departments: raw material storage and grinding mills; kilns; clinker grinding. To provide for continuous production during construction, these departmental replacements will be undertaken in three separate stages. The first stage, now under way, consists of the installation of a covered raw material storage served by an 80-ft. span bridge crane, three rotary driers and two raw-grinding mill units.

## CANADA

Judging from the nearly complete information available conditions in the cement industry in Canada in 1952 were again very good. Consumption of cement in 1952 is expected to total about 21,000,000 bbl., exceeding by a wide margin the 1951 record shipments of 17,007,812 bbl., valued at $40,446,288. The 1952 consumption of cement was nearly double that of 1939, reflecting the present defense spending, as well as the rapid capital expansion that had taken place since World War II.

Production in 1953 is expected to set another new high of about 22,500,000 bbl. which, it is believed, should take care of all demands. There is a feeling in the industry that the consumption of cement in Canada may now be approaching the peak of the cycle and that new plant additions just completed, or approaching completion, will assure ample supplies for a few years to come. The long-term outlook is held to be favorable, with an upward trend in demand due to the continuing population and industrial growth.

According to Clarence D. Howe, minister of trade and commerce and of defense production, Canada's prosperity will continue to rise in 1953. He said recently:

"Present prospects show little indication of any major change in 1953 from the generally favorable conditions that have prevailed in 1952.

"Production for defense purposes will continue as a significant factor. Strategic resource development may absorb even more resources than in 1952. Capital expenditure will continue at a high level."

The capacity of the cement industry in Canada was increased considerably during the past year, and further expansion work is nearly completed. Three new plants went into operation late in 1951 or in 1952 and important expansion programs were completed or are nearly complete at five plants. These new facilities together have a total capacity of over 6,000,000 bbl. annually and only a small percentage of this is believed to be replacement of existing facilities.

**British Columbia** The British Columbia Cement Company Limited, reports that its new No. 4 unit at Bamberton, B. C., is now in operation and will shortly be producing about 3,000 bbl. of clinker per day. This will give the plant a daily capacity of 6500 to 7,000 bbl., or over 2,000,000 bbl. annually. The new equipment installed included a 10½- by 350-ft. Vickers kiln, grinding mills, slurry-mixers, a complete three-stage crushing layout, a 200,000-bbl. clinker storage, etc.

**Canada Cement** The Canada Cement Co. in 1952 virtually completed a program begun in 1951 which called for the expenditure of $17,000,000 and increased its total producing capacity from 14,000,000 to 17,200,000 bbl. annually. The first step in this program was the construction of a new 800,000-bbl. dry-process plant at Havelock, New Brunswick, which went into operation in December, 1951. This plant has a 10- by 380-ft. F. L. Smidth kiln and three Smidth Tirax mills.

A major expansion and improvement program was completed late in 1952 at the company's plant at Exshaw, Alberta, and a similar program will be completed at the Belleville, Ontario, plant early in 1953. At Exshaw a third wet-process kiln, 11¼- by 430-ft., was installed, along with a new clinker grinding mill, a new crushing and grinding department, etc. Capacity was increased from 1,600,000 to 2,800,000 Canadian bbl. annually.

At the Belleville plant an 11¼- by 430-ft. F. L. Smidth kiln is being installed to supplement the two 455-ft. Smidth kilns now in operation. The capacity of this plant is being increased from 2,600,000 to 3,800,000 Canadian bbl. annually.

**Ciment Quebec** The new plant of Ciment Quebec, Inc., at St. Basile, 28 miles west of Quebec City, Quebec, actually went into operation in October, 1951, with a capacity of 800 U. S. barrels daily from the original 9- by 162-ft. kiln. A second 9½- and 8½- by 200-ft. kiln and additional finish grinding mills now being installed will be in operation about March, 1953, raising the capacity to about 1800 bbl. daily. A third kiln, an Allis-Chalmers 10½- by 265-ft. unit, has been ordered, and when this is started up later in 1953, capacity is expected to be about 1,000,000 bbl. annually.

**St. Mary's** The St. Mary's Cement Co., Ltd., St. Mary's, Ont., in 1952 was reported to have completed a part of a 4-year program of improvement which will raise its capacity from 660,000 to 2,100,000 bbl. annually. This work includes a new raw-grinding department, with three 800-hp. F. L. Smidth Unidan mills, two clinker grinding ball mills with air separators, a new 10½- by 350-ft. Smidth kiln, etc.

**Other Developments** During 1952 a cement plant, operated by North Star Cement Limited went into production at Corner Brook, Newfoundland. No further details are available. A new gypsum and wallboard plant is also in operation at that location, both projects having been financed by the Provincial Government of Newfoundland.

There has been no recent infor-

(*Continued on page 134.*)

# Made Small Gains in 1952

*Survey shows sand and gravel output up 2 percent; stone increased about 4 percent.*

By WILLIAM M. AVERY

BASED upon the very small amount of information available in the closing weeks of 1952, it appears that the aggregate industries continued operating last year at or a little above the peak levels established in 1951. Unfortunately, however, at this writing there are no firm data on hand covering 1951 production, and the problem of estimating output in 1952 becomes, therefore, a matter of superimposing an estimate upon an estimate. Bureau of Mines figures covering the sand and gravel and crushed stone industries in 1951 would normally have been available for publication in this issue but the canvasses have been delayed due to problems involved in converting from hand to punch-card tabulations. It is believed that the change-over will make it possible to complete future canvasses far more expeditiously than has been possible in the past.

In seeking to arrive at a basis for estimating 1952 output of sand and gravel and crushed stone we necessarily had recourse to our own estimates for 1951 published in these pages just a year ago. At that time we estimated total production of sand and gravel at 392,000,000 tons (including both commercial and non-commercial operations), and of crushed stone at 283,000,000 tons. These figures represented increases of 6 percent and 13 percent respectively, over known production in 1950.

Survey questionnaires returned to us late in 1952 by producers in various parts of the country indicate increased output for the year of about 2 percent in the case of sand and

One of the outstanding modernization and expansion programs of recent years was completed at the deep granite quarry of The Weston & Brooker Co., Columbia, S. C. Cableway transport out of this exceptionally deep and narrow quarry has been replaced by the 5-flight conveyor ladder in the background of this view.

One of the new plants which helped push the output of sand and gravel to a new peak in 1952 was this 250-t.p.h. installation of the H. G. Fenton Material Co. at San Diego, Calif.

gravel and of about 4 percent in the case of crushed stone. Thus it would appear that in the year just ended the aggregate industries produced approximately 400,000,000 tons of sand and gravel and 294,000,000 tons of crushed stone. The latter figure includes approximately 28,000,000 tons of agricultural limestone, which is covered in detail in our review of the miscellaneous nonmetallic minerals.

Since the total production samples obtained were relatively small (about 7 percent of the sand and gravel industry and a little over 9 percent of the crushed stone industry), it is doubtful if any valid conclusions can be reached as to the business trend in the various sections of the country. It might be noted that the small gain recorded for crushed stone was fairly uniform throughout the country except in the South, where the percentage rise was almost double the 4 percent shown for the industry as a whole.

The same departure from pattern also showed up in the compiled data for the sand and gravel industry, except that in this case small *losses* in production in all other sections were converted into a nation-wide net gain of 2 percent by the disproportionately large increases reported by Southern producers. Since a more favorable production picture showed up among Southern producers covered in both surveys, it may be fair to assume that the findings are correct at least in respect to the general trend.

**Hourly Capacity** The questionnaires sent out by this magazine asked for information concerning hourly productive capacity in tons on January 1 and November 1, 1952. Although we are aware that averages computed from samples are not necessarily representative of over-all averages, we do believe that such data can be most helpful in discovering and tracing trends. They are recorded here with only this purpose in mind.

Among the group of sand and gravel producers who submitted data, productive capacity increased from 261 to 290 tons per hour last year. Most of this rise appears to be accounted for by the expansion of existing plants rather than by the construction of new facilities. Plants in the West showed a rise of only 2 percent (from 243 to 248 t.p.h.); those in the Midwest reported a 7 percent increase (from 235 to 252 t.p.h.); Eastern plants increased 12 percent (from 275 to 308 t.p.h.); and the Southern group which accounted for over 30 percent of the total sample, jumped almost 17 percent (from 288 to 336 t.p.h.).

Capacity increases among crushed stone producers were on a somewhat more modest scale, averaging just a little over 5 percent (from 244 to 257 t.p.h.) for all the returns. Approximately the same relative increase appeared all over the country.

Shown here is one of the year's outstanding expanded shale plants. This two-kiln installation by Buildex, Inc., near Kansas City, produces about 600 cu. yd. of lightweight aggregate daily.

**Selling Price** The survey data indicates that the average price of the two basic aggregates remained virtually unchanged, although there were minor local fluctuations upward or downward. Average ($1.04 per ton) selling price of sand and gravel among the sand and gravel group actually showed no change at all in the 10-month period. The average price among the stone producers advanced from $1.42 on January 1 to $1.43 on November 1.

There were no wide price fluctuations in particular sections of the country within the covered period. The average price of sand and gravel, among producers in the East who furnished data, increased three cents per ton, and this was the largest change recorded for either material in any part of the country. The maximum shift in average prices for crushed stone was two cents per ton in the Midwest.

**Outlook** Our questionnaires asked individual producers to predict the trend of business as it may affect their own operations during 1953. Among sand and gravel producers 35 percent of the replies predicted modest increases in volume, 37 percent expressed the view that business would be about the same as in 1952, and 28 percent said they anticipated some downward adjustments. Answers to this question were studied on the basis of geographical location, but the only general conclusion which seemed to emerge was that Western and Midwestern producers in both industries are considerably jauntier about 1953 prospects than are their opposite numbers in the East and South.

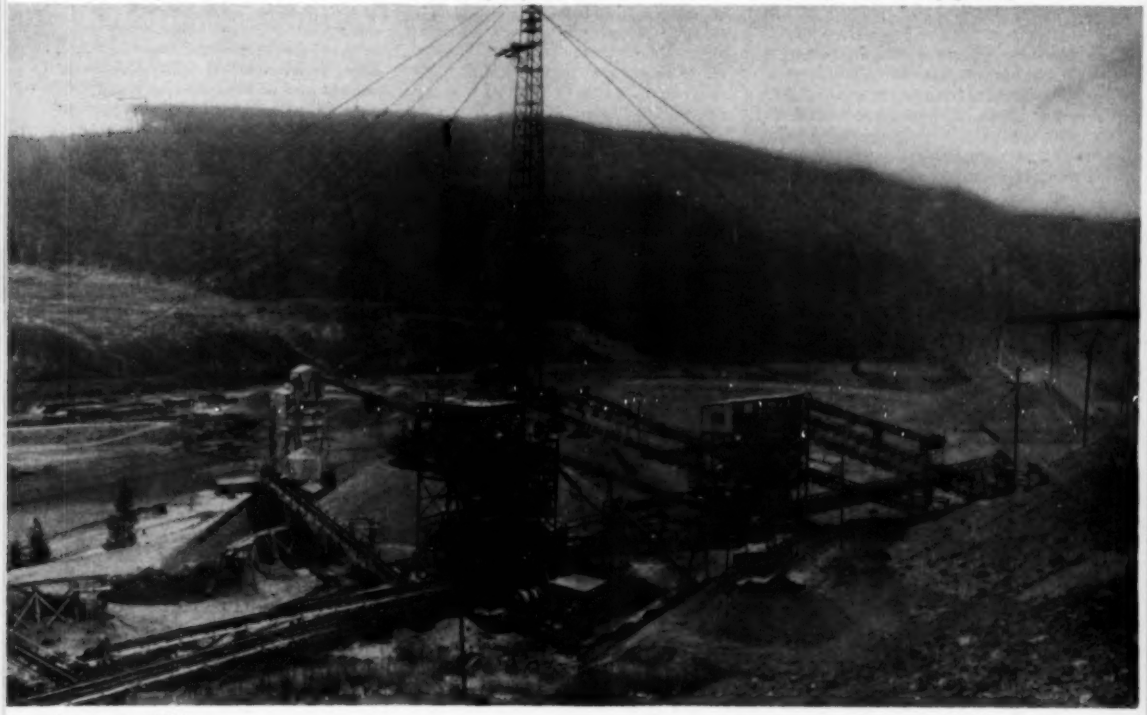
Of somewhat greater significance, perhaps, were the answers to questions concerning immediate plans for new plant construction or for expanding the capacity of existing plants. About 8 percent of our informants in the sand and gravel industry plan to build new plants during 1953, and an additional 20 percent will make improvements or additions which will increase capacity. The latter figure was almost duplicated among the crushed stone group, but a smaller proportion (about 6 percent) showed up in the new plant column.

**Slag** Except for the prolonged steel strike, which cut off raw material supplies for some weeks during 1952, there is little doubt that production of iron blast-furnace slag would have established a new record for the year. As close as can be estimated from the fragmentary evidence available, total production for the year may have been off as much as 5 percent from the record level of 29,300,000 tons set in 1951. On this basis the industry's 1952 output may have approximated 28,000,000 short tons with a value of about $35,000,000.

With reasonably continuous steel operations throughout the coming year there is good assurance that slag output will set a new record well above the 1951 mark. Expansion of processing facilities is already in progress to utilize portions of the increased amounts of slag coming from new blast furnaces, and there is a strong probability that entirely new slag plants will be constructed at Morrisville, Pa., and at Middletown, Ohio.

**Lightweight Aggregates** The tremendous expansion of facilities for manufacturing various types of lightweight aggregate has made it virtually impossible to keep pace with this booming industry on any rational statistical basis. This publication's survey (reported elsewhere in this issue) of the concrete masonry industry, largest consumer of lightweight aggre-

(*Continued on page* 134.)



**Corps of Engineers Projects accounted for an important share of 1952's record-breaking consumption of aggregates. Shown above is the Lookout Point Dam aggregate plant and construction site on the Middle Fork of the Willamette River, east of Eugene, Oreg. Raw material comes to the plant from a mountain-top quarry by means of a conveyor system.**

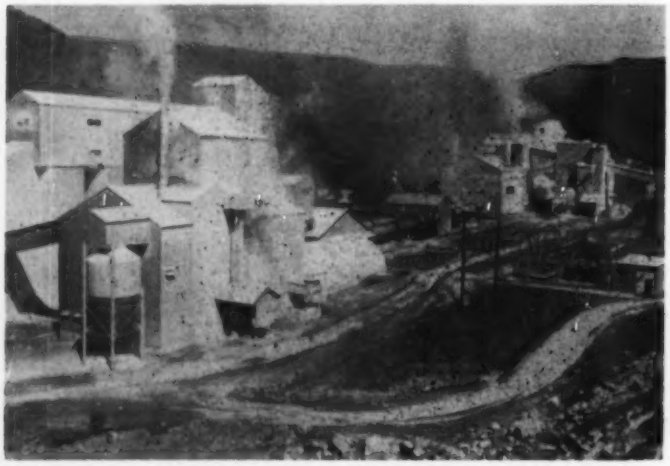
# Most Nonmetallic Industries Set All-Time Production Record

ACCORDING to preliminary reports released by the Bureau of Mines, 1951 was a banner year for the nonmetallic mineral industries (exclusive of cement and aggregates). Nearly every industry reported substantial gains in production and sales in 1951 over 1950; furthermore, the majority of the industries discussed here set all-time production records. From a consideration of fragmentary 1952 production data available at this time, it appears that 1952 was also an excellent year for mineral output although it is not expected that as many production records were broken.

Industries reporting all-time high production records in 1951, with percent of increase over 1950, are as follows: lime (shipments) up 10 percent; gypsum, 6 percent; sulphur, 2 percent; potash, 10 percent; salt, 22 percent; bromine (sales), 32 percent; boron, 26 percent; asbestos, 25 percent; talc, 4 percent; and kaolin, 7 percent. Domestic bauxite production jumped 40 percent for a new post-war record. Although shipments of fluorspar, which increased 15 percent, did not attain a record, consumption and imports of fluorspar did reach all-time highs. Barite production increased 22 percent to a near record high, while consumption attained a record amount. Output of abrasives generally increased in 1951, with pumice, garnet, and emery showing gains, and tripoli showing a loss.

On the other hand, a few industries showed slight decreases in production in 1951, including: phosphate down 3 percent; slate 11 percent; agstone 8 percent; feldspar 2 percent; and natural pigments 2 percent. However, at the same time, the value of domestic phosphate output increased 12 percent for an all-time high. Moreover, the production value of natural pigments and feldspar increased by 2 and 10 percent respectively.

Partial 1952 data indicate that sulphur production should increase by approximately 1 percent and phosphate production by about 5 percent, thus bringing about new records. However, lime production is believed to have declined 7 percent in 1952, although the total output was still the second highest in history. Bauxite production is also believed to have declined in 1952 (about 8 percent), but bauxite imports should reach a new peak, which means that the new supply should attain an all-time high.



A general view of National Gypsum's modern rotary kiln lime plant at Kimballton, Va.

**Lime** Preliminary figures from the Bureau of Mines revealed that total lime shipments in 1951 reached an all-time record of 8,255,512 short tons, valued at $96,934,611, which represented a 10 percent increase in output over the previous record year (1950) total of 7,748,416 tons. This significant increase was largely accounted for by the output of quicklime, which totalled 6,335,729 tons, valued at $72,347,501—representing a tonnage increase of 13 percent over 1951. Hydrated lime shipments, which totalled 1,919,783 tons, valued at $24,587,110, showed only a 2 percent increase. It is to be noted that these production figures include a small amount of lime (6 to 7 percent) used by producers (captive tonnage), and that value figures were based on selling value, f.o.b. plant, including cost of container. In 1951 the average value was $11.74 a ton. It is estimated that 40 percent of the total production was high-calcium lime and 60 percent high-magnesium lime.

A breakdown of major uses of both quicklime and hydrated lime showed that chemical and industrial uses totalled 4,711,711 tons or 57 percent of the total output; refractory (dead-burned) dolomite, 1,966,460 tons or 24 percent; building lime, 1,233,722 tons or 15 percent; and agricultural lime, 343,614 tons or 4 percent. Production by major uses in 1951 showed percentage increases for chemical and industrial lime, up 14; refractory dolomite, up 12; and agricultural

lime, up 3; but building lime was down 1 percent. A further breakdown gives the following percentage changes in 1951: agricultural quicklime, up 14; chemical and industrial quicklime, up 16; building lime hydrate, up 2; chemical and industrial lime hydrate, up 3; agricultural lime hydrate, down 2; and building quicklime, down 11. Thus, chemical lime and refractory dolomite showed very significant increases, while building lime and agricultural lime remained virtually the same. The chemical lime gain alone approximated 570,000 tons in 1951. Within that group the greatest gains were shown for metallurgical, paper, and calcium carbide uses (approximately 20 percent for each).

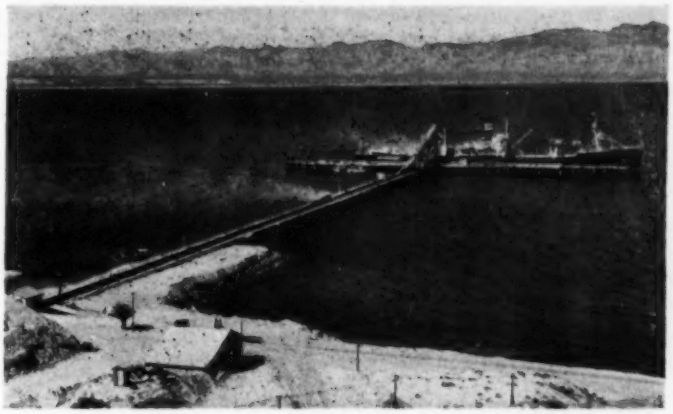
This record production in 1951 was accounted for largely by the continuation of large-scale industrial mobilization spurred on by the Korean war.

Although complete statistics for 1952 lime production are not available, it appears that lime production in 1952 will total approximately 7,750,000 tons, a decrease of about 7 percent from 1951. However, in spite of this significant decline, 1952 will still rank as the second-highest production year. This estimate is based partially upon open-market sales statistics released by the Bureau of Mines for the first ten months of 1952. This publication of latest monthly shipments is a welcome innovation on the part of the Bureau of Mines, since in the past the Bureau has collected lime data on an annual basis only. These monthly figures include the output of plants whose cumulative production in 1950 constituted 97 percent of the entire open-market lime industry. These preliminary figures revealed that the January-September sales amounted to 5,668,103 short tons, including 4,264,157 tons of quicklime and 1,403,946 tons of hydrate. Of this total, the chemical and industrial lime, refractory dolomite, building lime, and agricultural lime uses constituted the following percentages, respectively: 58, 23, 15, and 4, which is practically identical with 1951 data.

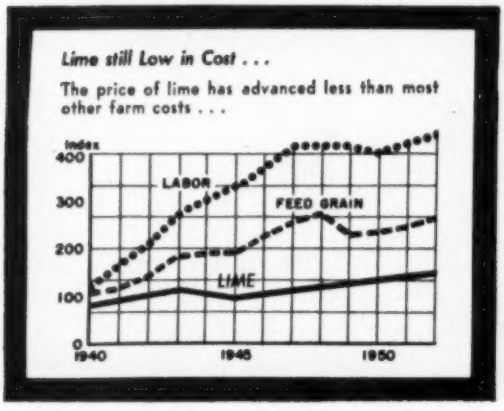
The anticipated decrease in 1952 production is largely explained by the exceptionally long (2-month) steel strike which occurred early in the summer, when the average monthly domestic steel ingot production dropped from approximately 9,000,000 tons to 1,500,000 tons. After the steel strike ended, the steel production rose rapidly to an all-time monthly high of nearly 10,000,000 tons late in the fall of 1952. That lime plays a major role in the steel industry is indicated by the fact that in 1951, 44 percent of the total lime sold was metallurgical lime (included in chemical and industrial group) and refractory dolomite.

During 1952 the lime industry petitioned the Office of Price Stabilization for price relief, but at the time of writing little action had been taken by OPS. According to the National Lime Association, lime producers, particularly in the South and Southwest, have suffered reduced profits as a result of the delay in obtaining price relief.

The N.L.A. also reported that since the beginning of the Korean War, the total domestic lime burning capacity has increased well over 1,000,000 tons, most of this increased capacity occurring during 1952. This outstanding increase in capacity is accounted for by refractory dolomite (estimated increase, 600,000-650,000 tons) and quicklime (estimated increase, 550,000-600,000 tons). Most of the increase has been through the installation of rotary kilns.



This view from the edge of Kaiser Gypsum Division's quarry on San Marcos Island in the Gulf of Mexico shows a large belt conveyor discharging gyprock into a self-unloading vessel. The raw material is then transported to Kaiser's wallboard plant at Redwood City, Calif.




A graph showing that the price of agricultural limestone has increased relatively little in comparison with other farm costs.

**Gypsum** The latest Bureau of Mines data available show that 1951 was a record year for the domestic production of crude gypsum. Production reached a total of 8,665,534 short tons, valued at $24,024,101, which exceeded the 1950 output (the previous record year) by 472,909 tons (6 percent) and $1,289,533 (also 6 percent). Production was reported from 55 mines in 20 states, with California having the most mines—10. Leading producers in 1951 were Michigan (18 percent of the total tonnage), New York, (15 percent), Oklahoma (15 percent), and Texas, Iowa and California (each 13 percent). All states reporting showed increases in production in 1951 except New York, Montana, and Oklahoma; however, the decline in production in these three states was minor. Iowa showed the greatest gain in 1952.

In 1951 imports of crude gypsum increased 4 percent to 3,307,567 tons, thus bringing the apparent supply of gypsum to a record high of 11,973,101 tons (an increase of 6 percent over 1950).

Calcined gypsum produced in 1951 amounted to 7,477,155 tons, an in-

crease of 2 percent over 1950. Uncalcined gypsum output increased 4 percent and totalled 2,530,379 tons in 1951. Within the uncalcined group, cement retarder comprised 72 percent and agricultural gypsum, 27 percent; both uses showed increases in 1951, with agricultural gypsum making an outstanding gain of 48 percent.

Industrial uses totalled 288,713 tons, thus increasing by 8 percent. Plaster and Keene's cement uses amounted to 2,838,048 tons, a decline of 4 percent from 1950. Most of this decrease was accounted for by base-coat plasters, which declined slightly more than 150,000 tons (about 7 percent).

Gypsum lath production declined slightly in 1951, dropping from a record high of 2,793,620,000 sq. ft. in 1950 to 2,756,278,000 sq. ft. Wallboard, on the other hand, showed an important gain of 12 percent, reaching a total output of 3,243,676,000 sq. ft. in 1951. The combined value of lath and wallboard production in 1951 was $105,128,204, which represented 44 percent of the 1951 grand total value of gypsum products.

**Agricultural Limestone** The use of agricultural limestone in the United States in 1951 declined considerably from 1950, according to a recently-published report of the National Agricultural Limestone Institute. The total use amounted to 27,583,018 tons, nearly an 8 percent decline from the 29,842,145 tons used in 1950. However, it is expected that the 1952 consumption increased slightly over 1951 and would approximate 28,000,000 tons.

Illinois again maintained its leading position, using 4,156,281 tons or 15 percent of the total. Iowa replaced Missouri as the second largest consumer, reporting 3,192,384 tons (12 percent of the total), against 3,027,807 tons (11 percent of the total) for Missouri. Other leading states were Indiana (2,614,622 tons or 9 percent); Ohio (2,311,142 tons or 8 percent); Wisconsin (1,790,248 tons or 6 percent); Pennsylvania (1,304,645 tons or 5 percent); Kentucky (1,069,661 tons or 4 percent); and Virginia (855,686 tons or 3 percent). These nine states, representing one-fourth of those reporting, consumed 73 percent of the total agstone in 1951.

Of the states reporting, 70 percent showed declines in 1951 in amount of agstone used. Sectionally the Midwest showed a considerable decline and the East a slight decline, while the West remained relatively stable. The South was the only section showing an overall gain, but that was slight. Major declines were as follows: Illinois (down 829,000 tons or 17 percent); Missouri (673,000 tons or 18 percent); Iowa (310,000 tons or 9 percent); Wisconsin (286,000 tons or 14 percent); and Indiana (241,000 tons or 9 percent). Kentucky, Tennessee, and Virginia also reported considerable declines. On the credit side major gains were shown by Ohio (up 107,000 tons or 5 percent); New York (103,000 tons or 14 percent); Florida (95,000 tons or 42 percent); Georgia (64,000 tons or 25 percent); Arkansas (62,000 tons or 138 percent); North Carolina (58,000 tons or 15 percent); and Mississippi (55,000 tons or 18 percent).

**Sulphur** According to the Bureau of Mines, native sulphur (Frasch process) production in the United States in 1951 set a new record of 5,278,249 long tons, exceeding the 1950 record output of 5,192,184 tons by nearly 2 percent. From preliminary figures through the first three quarters of 1952, it appears certain that another record will be established, but only by a slight margin. Production through September, 1952, amounted to slightly over 4,000,000 tons or about 1 percent over the same period in 1951. Judging from this fact, it is expected that the 1952 production will rise 1 percent to 5,300,000 tons.

During 1951 and 1952 production remained exceptionally steady, with each month exceeding 400,000 tons. The maximum monthly production was in July, 1952, with 477,939 tons, a near-record monthly high.

Over a period of years prior to 1951, producers' stocks of sulphur declined continuously as sales exceeded production. By 1951 stocks were so low that the practice could no longer be continued and consequently, more than 500,000 tons or 9 percent less sulphur was shipped from the mines than in 1950. Similarly, apparent sales in 1951 of 5,095,347 long tons were 10 percent below 1950. As a result, at the end of 1951 stocks totalled 2,837,432 tons or a gain of 7 percent over 1950.

Judging from the data available, this trend was continued to a degree in 1952, when mine shipments and apparent sales were each below production by approximately 5 percent. Furthermore, producers' stocks in September, 1952, increased to 3,081,284 tons or about 9 percent over September, 1951. For the first three quarters of 1952 apparent sales amounted to 3,759,779 tons, or a decrease of 100,000 tons (about 3 percent) from the comparable period in 1951, while shipments increased to 3,847,050 tons (about 2 percent), during the comparable periods.

In 1951 recovered elemental sulphur production (of a purity of 97 percent or better) amounted to 187,109 tons, or a gain of 32 percent over

An exterior view of Floridin Company's rebuilt modern fuller's earth plant at Quincy, Fla.

1950; brimstone constituted nearly all of this amount. Pyrite production (including coal brasses) amounted to 1,107,769 tons gross (433,819 tons sulphur content), an increase of 9 percent over 1950. For the first three quarters of 1952, recovered sulphur production amounted to 177,637 tons, indicating that the total 1952 production will approximate 250,000 tons, or a gain of 32 percent over 1951.

Indication of the leading position the United States plays in native sulphur production is the fact that in 1951, 91 percent of the world's total production of approximately 5,800,000 long tons, was accounted for by the United States. Moreover, in 1951 the domestic pyrite production was relatively high, amounting to 8 percent of the world's total.

A dragline is used to recover fuller's earth from Floridin's open-pit operation at Quincy, Fla.

**Phosphate** In 1951 mine production of phosphate rock in the United States was 10,775,032 long tons, a decline of 3 percent from the record high in 1950 of 11,114,159 tons. In spite of this decline in production, 1951 still ranked second in annual production. Value of phosphate at the mines, on the other hand, increased to an all-time record total of $66,158,078, a gain of 12 percent over 1950.

Based on production data available for the first half of 1952, it is expected that 1952 production will approximate 11,500,000 tons and thus set an all-time record. For the first half of 1952, output increased to 5,773,922 long tons, a rise of approximately 9 percent above the corresponding period in 1951. If the second half production even equals that of the corresponding period in 1951, the total 1952 production will be 11,300,000 tons. If the increased rate of production established during the first half of the year continues, the total production should reach at least 11,500,000 tons.

Florida and Tennessee continued in 1951 to be the two leading phosphate producers, with Florida accounting for 76 percent and Tennessee 13 percent of the total production. Four western states (Idaho, Montana, Wyoming, and Utah) produced the balance. Slight decreases (less than 5 percent) were shown in Florida and Tennessee, whereas an increase of 9 percent was recorded in the western states total.

Sales increased 8 percent, rising from 10,253,552 long tons in 1950 to 11,095,204 tons in 1951, a part of which came from stocks. Large increases in sales (approximately 5 percent) occurred in Florida and the western states, while those of Tennessee increased somewhat less (3 percent). The $P_2O_5$ content of the rock sold or used in 1951 increased to a new record high of 3,569,651 long tons, an increase of 7 percent over 1950. The upward trend in the marketed production of Florida phosphate rock continued in 1951, reaching a total of 8,496,831 tons. The greatest part of this Florida production came from the land-pebble field (98 percent), the balance coming from hard rock and soft rock (waste-pond phosphates from the hard rock field).

In 1951 imports increased both in quantity and value. Exports, on the other hand, decreased 5 percent to 1,677,076 tons, although the value rose slightly. Apparent domestic consumption of phosphate rock rose to a record high of 9,507,951 tons, an increase over the previous high (1950) of 11 percent.

The United States, in 1951, produced nearly 50 percent of the estimated world's total production of 23,420,000 metric tons. Approximately 55 percent of the domestic production was used for superphosphate and 15 percent for phosphates, phosphoric acid, and phosphorous. Exports comprised 15 percent of the total.

Data for the first half of 1952 showed that although phosphate rock production rose 9 percent, the amount sold or used during that period was 5,670,752 tons or only 2 percent greater than for the first half of 1951. Producer stocks as reported were 1,833,000 tons, the smallest since 1949. The total value rose approximately $1,700,000 (about 5 percent) above that of January-June, 1951, with the average value rising to $6.18 per ton.

Changes in the amount of phosphate rock sold or used by states for the comparable six-months period were as follows: Florida, up 5 percent (207,505 tons); Tennessee, down 9 percent (64,728 tons); and the western states, down 1 percent (30,528 tons).

**Potash** Production of domestic potash salts in 1951 again attained record proportions, according to the Bureau of Mines; it amounted to 2,474,870 short tons (1,420,323 tons $K_2O$ equivalent) or approximately a 10 percent increase over the 1950 output. Potash sales also increased over 1950 by 10 percent, rising to 2,451,913 tons (1,408,408 tons $K_2O$), valued at $44,788,880. During this two-year span the average prices rose from $17.90 to $18.27 per ton. Stocks on hand at the end of 1951 were 62,597 tons.

Potash materials exported in 1951 rose 6 percent in quantity and 37 percent in value over 1950, with both fertilizer and chemical grades showing increases; exports amounted to 124,251 tons (68,674 $K_2O$) valued at $7,601,646.

Total potash salt imports increased more than 50 percent, rising from 381,490 tons (200,529 tons $K_2O$), valued at $13,993,974 in 1950, to 574,361 tons (313,454 tons $K_2O$), valued at $18,543,116, in 1951; this represents the highest reported import total since 1938. The apparent consumption of potash (quantity sold by producers, plus imports, minus exports), was 2,902,023 tons (1,653,188 tons $K_2O$) representing a 17 percent increase over 1950.

The production of both grades of potash muriate (60 to 62 percent $K_2O$ minimum and 48 to 50 percent $K_2O$ minimum), increased in 1951, with the higher grade muriate rising 10 percent to a new high of 2,047,793 tons and the lower grade muriate ris-

ing slightly. Production of manure salts dropped slightly to 19,775 tons. In 1951 the combined production of sulphate of potash and sulphate of potash-magnesia reached a total of 251,505 tons, an increase of 13 percent. Indicative of the relative importance of the four grades of potassium salts just mentioned is the fact that in 1951 high grade potash muriate comprised 83 percent of the total potash salt produced; low-grade muriate, 6 percent; manure salts, 1 percent; and sulphate of potash and potash-magnesia, 10 percent.

In 1951 California, New Mexico, and Utah supplied nearly all of the reported domestic potash production, with over 95 percent of the total coming from the extensive Permian red bed deposits of southeastern New Mexico.

**Salt** Another nonmetallic mineral to reach record proportions of output in 1951 was salt, according to Bureau of Mines statistics. Production increased 22 percent over 1950, rising from 16,629,809 tons, valued at $59,911,343, in 1950 to a record high of 20,207,131 tons, valued at $69,735,000. Of the three methods of recovery reported, the salt-in-brine method was the most important, accounting for 59 percent of the total output; rock salt comprised 23 percent; and evaporated dry salt, 18 percent. Salt-in-brine also showed the greatest gain over 1950, an increase of more than 2,500,000 tons or 27 percent; rock salt output increased 19 percent (about 750,000 tons); and evaporated dry salt increased 10 percent (over 300,000 tons).

It is interesting to note that the domestic output has more than doubled and the value tripled in the last decade; the average production in 1935-39 was only 8,660,215 tons, valued at $23,405,612.

A general expansion of salt-producing facilities was noted in 1951. Five states accounted for 82 percent of the output, including Michigan (25), New York (17), Ohio (15), Louisiana (13), and Texas (12). All states reporting showed gains, with some gains exceeding 500,000 tons. California showed an outstanding percentage gain of nearly 50 percent.

Evaporated salt was supplied by 48 plants in 12 states and Puerto Rico, with Michigan producing the largest amount—878,845 tons or 22 percent of the total. Rock salt shipments were reported from 18 mines in 8 states. Pressed blocks, used chiefly for cattle, were made at 22 evaporated salt plants and 8 rock salt plants in 1951. Facilities for the production of salt-in-brine were greatly expanded in 1951.

The outstanding increase in 1951 salt production was due primarily to enlarged demands of the soda ash, chlorine, and other chemical industries. Forty-one percent of the 1951 total salt production was used for the manufacture of soda ash, and 23 percent for chlorine and chlorine compounds. Smaller increases were accounted for by its use in water treatment, meat packing, highways, metallurgy, ice control, and various chemicals.

Exports, largely to Canada and Japan, more than doubled in 1951 over 1950; they totalled nearly 440,000 tons, valued at $3,617,054. Imports, on the other hand, declined from 7,869 tons in 1950 to only 4,329 tons in 1951.

**Bromine** A Bureau of Mines preliminary report shows that 1951 was a peak year in the output of bromine, when sales of bromine and bromine compounds totalled 152,390,081 lb. gross weight (129,563,073 lb. bromine equivalent), valued at $26,179,556. This output exceeded the previous record year, 1944, by a considerable amount and showed a tonnage gain of 32 percent over 1950. The bulk of the increase was attributed to the greater consumption in ethylene dibromide, which is used as an ingredient in anti-knock compounds.

Total sales in 1951 were accounted for by the following: elemental bromine, 5 percent; sodium potassium and ammonium bromide, 4 percent; and other uses, including ethylene bromide, 92 percent. The last-mentioned category showed a gain of 32 percent tonnage-wise over 1950.

Bromine continued to be produced from three main sources, including two seawater operations (in Texas and California); several well brine plants (Michigan, Ohio, and West Virginia); and an extensive surface brine deposit at Searles Lake, Calif. The two leading producers were the Ethyl-Dow Chemical Company, Freeport, Tex (seawater), and the Dow Chemical Company, Midland, Mich. (well brine).

**Boron Minerals** A new production record was established in 1951 for boron compounds, as a result of the year's high level of industrial activity. Preliminary Bureau of Mines statistics show that output of boron minerals and compounds (borax, anhydrous sodium tetraborate, kermite, boric acid, and colemanite) reached 862,797 short tons (241,000 tons $B_2O_3$ equivalent), valued at approximately $20,030,000, as compared with 647,735 short tons, valued at $15,890,000, in 1950. This was an increase of over 26 percent in tonnage and value.

The entire production was accounted for by firms mining evaporite deposits in the Searles Lake-Death Valley district of eastern California.

**Bauxite** Domestic production of bauxite reached a new postwar high of 1,848,676 long tons (dry basis) in 1951, according to a Bureau of Mines report; but figures released for the first three quarters of 1952 indicate that 1952 production will probably be at least 150,000 tons lower. The large production in 1951, which exceeded the 1950 production by more than 500,000 tons, or approximately 40 percent, was a result of expansion in the bauxite industry necessitated by the growing requirements of the huge domestic aluminum industry. More than 98 percent of the domestic supply of bauxite was produced in Arkansas and the remainder in Alabama and Georgia.

General imports of crude and dried bauxite (excluding calcined ore) in 1951 reached a record high level of 2,829,929 tons, which exceeded the 1950 imports by 12 percent. Surinam, which alone produced over 2,600,000 metric tons of bauxite in 1951, provided the U. S. with 83 percent of the imports; Indonesia, with 12 percent; and British Guiana, with 5 percent.

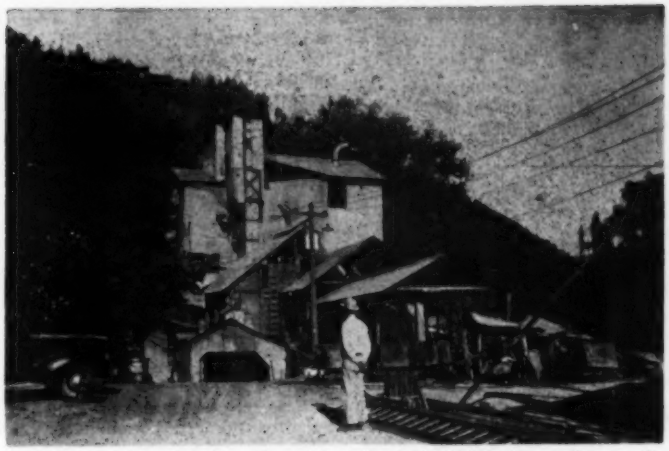
The combined high domestic production and high imports brought the total new supply of bauxite in 1951 to a record total of 4,678,605 tons, 22 percent greater than 1950. Of the total supply, approximately 3,350,000 tons of ore, or 70 percent, was consumed in the production of aluminum, the remainder going to the abrasive, chemical, refractory, and other industries. In 1951 the domestic supply accounted for 40 percent of the total bauxite supply in the United States.

Exports of bauxite totalled about 70,000 long tons, a slight increase over 1950. The increase largely reflected greater shipments to the Canadian side of Niagara Falls for the production of crude abrasives which were then returned to the United States for final manufacture and consumption.

mestic bauxite operations in 1951, one American aluminum concern expanded its facilities in Surinam and two other firms developed new projects in Jamaica. These latter projects began production in 1952.

Domestic production, from January to September, 1952, totalled 1,197,251 tons, which was approxi-

mately 160,000 tons, or 9 percent lower than the corresponding 9-month period in 1951. This decrease was largely brought about in the third quarter of 1952, which was at the lowest rate in two years. One factor causing this decline was that Alcoa stopped shipments of Arkansas bauxite to its East St. Louis plant. Offsetting this decrease in domestic production during the comparable 9-month periods was an increase of imports of slightly over 400,000 tons, or nearly 20 percent, bringing the total imports during the 1952 period to 2,527,240 tons. Based upon this latest data available, it appears that the 1952 domestic production will fall to about 1,700,000 tons, a drop of 8 percent, while the total new supply will rise to a new record high of approximately 5,100,000 tons, an increase of more than 8 percent over 1951.



Pacific Minerals Company's slate mill near Placerville, Calif., which produces roofing granules and slate flour for western industries.

**Fluorspar** The fluorspar industry in 1951 featured record consumption and imports of fluorspar, the highest post-war shipments from domestic mines, higher prices, reduction of rate of duty on acid-grade fluorspar, an increase in the rate for lower grades, and a shortage of acid-grade fluorspar.

Domestic shipments in 1951 amounted to 347,024 short tons, valued at $14,369,521, which was 15 percent greater tonnage-wise than the 1950 output of 301,510 tons, valued at $10,619,717. However, this high production was off 16 percent from the record year (1944), when shipments reached nearly 414,000 tons. In spite of the large production in 1951, the industry's requirements greatly exceeded the domestic production. The deficit was met by all-time high record imports totalling 181,275 tons, valued at $4,110,081, which exceeded the former record year (1950) by 10 percent.

The accelerated activity in the 1951 fluorspar industry was accounted for by the record consumption of fluorspar at basic open-hearth steel and hydrofluoric-acid plants and by a slight gain in consumers' stocks. Fluorspar consumption established a new high in 1951 of 497,012 tons, compared with 426,121 tons in 1950 and with 410,170 tons in 1944, the previous record year. The steel industry, which set a new production record in 1951, continued to be the principal user of fluorspar, absorbing 56 percent of the total amount consumed in 1942. The hydrofluoric-acid industry, the second-largest utilizer of fluorspar, accounted for 31 percent of the total amount consumed in 1951; this use was 22 percent greater than in 1950. Consumption of fluorspar by the glass industry was increased slightly in 1951, but less fluorspar was used in the enamel industry.

Illinois maintained its rank as the largest producer of fluorspar in 1951 by supplying 204,528 tons, which was 51 percent of the total domestic shipments. Moreover, Illinois established a new record by shipping 32 percent more fluorspar than in 1950 and 3 percent more than in the previous record year, 1943. Other leading producers, with percentages of output, were Kentucky (20), New Mexico (7), Colorado (6), and Utah (5). Arizona, Colorado, Idaho, New Mexico, and Tennessee also shipped more fluorspar than in 1950, but Kentucky, Nevada, and Utah shipped less. Idaho reported shipments for the first time, and Tennessee for the first time since 1943.

Although exporting 12 percent less to the U. S. in 1951 than in 1950, Mexico continued to be the chief source of imports by supplying 64,025 tons or 35 percent of the total imports. This amount, however, was proportionately less than in 1950. Other leading foreign sources were Germany (27 percent), Spain (18 percent), Canada (12 percent), and Italy (6 percent). Shipments from Germany were considerably larger in 1951 than in 1950.

**Talc** According to the Bureau of Mines, domestic production of talc, pyrophyllite, and ground soapstone reached an all-time high of 640,456 short tons in 1951, representing a 4 percent increase over the previous record year, 1950. A record was also established in 1951 for the sales of these materials, which totaled 636,068 short tons, valued at $11,322,830.

New York was still the leading producer in 1951, accounting for 24 percent of the total domestic output sold by producers. Other important producers were California (20 percent); North Carolina (18 percent); and Vermont and Georgia (each 12 percent). 1951 sales were higher in California, Georgia, Maryland, Virginia, and Vermont but lower in New York and North Carolina.

Total imports in 1951 were somewhat lower in tonnage but slightly higher in value than in 1950, amounting to 20,640 tons, valued at $694,066. On the other hand, exports of talc, steatite, soapstone, and pyrophyllite increased to $2,168,815, or an increase of 19 percent over 1950.

The principal industries using talc and related minerals were ceramics, paint, insecticides, rubber, roofing, and paper, whose combined use constituted 86 percent of the total sales.

In 1951 the United States continued its leading position in the talc, pyrophyllite, and soapstone field by producing 37 percent of the world's total output.

**Natural Pigments** According to the Bureau of Mines, shipments of natural mineral pigments and manufactured iron-oxide pigments declined 2 percent in 1951, dropping from 129,256 short tons in 1950 to 126,432 tons in 1951. However, value-wise, there was a 2 percent increase ($14,762,782 in 1950 to $14,987,075 in 1951). The leading pigments continued to be natural red oxides, pure red oxides, mineral

blacks, and other red oxides, each amounting from 14 to 18 percent of the total sales.

In 1951 minor tonnage declines were shown by natural brown oxides, pure red oxides, pyrite cinder, ochers, burnt umbers, and a few other types, while pure yellows showed a slight gain. Mineral blacks declined the largest amount—16 percent, while pure red oxides increased the largest amount—23 percent.

The decreased domestic production of pigments was somewhat offset by the increase in imports, which rose from 9,174 short tons in 1950 to 14,000 tons in 1951, a gain of over 50 percent.

**Barite** Domestic mine production of primary barite, which had slumped considerably from the record year of 1947, reached a near-record amount of 845,579 short tons in 1951, according to the Bureau of Mines. The 1951 tonnage represented a 22 percent increase over the 1950 output of 693,424 tons. The total value also increased considerably from $6,193,906 in 1950 to $7,968,023 in 1951.

The demand for barite began to increase in the latter part of 1950 and continued to expand greatly in 1951. By the end of the year shortages were being reported and producers were making an effort to increase their capacities.

Although imports dropped slightly in 1951 to 52,755 tons, consumption of barite totalled 950,893 tons, an all-time yearly high. (The latter figure included some witherite.)

In 1951 Arkansas and Missouri continued as leading barite-producing states, with Arkansas producing 47 percent of the total output and Missouri 33 percent. Gains for Arkansas and Missouri in 1951 amounted to 19 percent and 32 percent, respectively. Other states reporting included Georgia, South Carolina, Tennessee, Nevada, Arizona, California, Idaho, New Mexico, and Montana (a new producer).

A breakdown of barite shipments shows that 78 percent of total tonnage sold or used by producers was accounted for by ground or crushed barite, 1 percent by barium chemicals, and 12 percent by lithopone.

Significant trends in 1951 were the large increases in tonnages of ground barite used in well drilling muds (from 483,519 tons to 594,668 tons —an increase of 23 percent) and in concrete aggregates (from 15,784 tons to 38,143 tons—an increase of 138 percent).

**Asbestos** According to a Bureau of Mines report, the production of asbestos in the United States in 1951 reached an all-time high of 51,730 short tons, valued at $3,912,500. This output exceeded the previous all-time record year of 1949 by 9,296 tons and the 1950 production by 10,372 tons. This 25 percent increase in production over 1950 was accompanied by an increase of $987,450 in total domestic sales.

Domestic production of asbestos was reported from several states, with Vermont the leading producer of the chrysotile variety. Moderate supplies of chrysotile, some of it of high-quality spinning grade, were also obtained from Arizona. Very limited production of amphibole asbestos was reported from California, Georgia, Montana, and Oregon.

In spite of the record domestic production, nearly all of the asbestos used in American industry (about 94 percent) was imported from various sources. Total imports amounted to 761,973 tons, valued at $58,521,046, which exceeded all previous records. Canada continued to be the chief contributor; in fact, imports from Canada reached an all-time high. On the other hand, imports of low-iron chrysotile from Southern Rhodesia continued to decline. This has created a critical situation, since this variety of asbestos is obtained in only limited quantities from other countries. In 1951 South Africa continued to supply all of the amosite and most of the crocidolite (blue asbestos) consumed in the United States.

**Abrasives** In 1951 domestic production (sold or used by producers) of natural abrasives was slightly greater than in 1950. Output and relative changes of individual abrasives were as follows: pumice and pumicite, 749,942 short tons (up 4 percent), valued at $2,252,907 (up 4 percent); garnet, 14,050 tons (up 51 percent), valued at $1,246,947 (up 57 percent); tripoli, 34,476 tons (down 21 percent), valued at $1,105,135 (down 6 percent); grindstones, 5,549 tons (up 25 percent), valued at $303,901 (up 32 percent); emery, 11,634 tons (up 96 percent), valued at $160,212 (up 113 percent); grinding pebbles, 3,062 tons (up 60 percent), valued at $84,306 (up 59 percent); tube-mill liners, 1,408 tons (down 8 percent), valued at $77,027 (up 23 percent); millstones, no tonnage data but valued at $6,000 (down 47 percent).

1951 data for diatomite, quartz, and ground sand and sandstone unfortunately were not available. However, in 1950 ground sand and sandstone were the leading natural abrasives, with production totalling 750,673 tons, valued at $6,462,503. Quartz production in 1950 amounted to 160,508 tons, valued at $706,724.

**Slate** Slate production in the United States decreased considerably from 1950 to 1951, dropping from 930,370 short tons, valued at $15,047,481, in 1950 to 825,700 tons, valued at $13,894,711, in 1951. These figures represented declines of 11 percent in quantity and 8 percent in value.

## Aggregates Review

(*From page* 127.)

gates, indicates that about 960,000,000 8-in. equivalent lightweight masonry units were produced in 1952. Using for purposes of estimation a yield figure of 50 units per cu. yd. of lightweight aggregate, it appears that the block industry alone consumed approximately 19,200,000 cu. yd. of material.

There were undoubtedly gains in the use of lightweight aggregates in other branches of the concrete products industry as well as in ready-mixed concrete, plaster, and in insulating and accoustical applications. These uses are at present extremely difficult to estimate, but we believe they may account for sufficient quantities to bring the lightweight aggregate industry's total volume for 1952 to around 26,000,000 cu. yd.

One excellent measure of the lightweight industry's tremendous growth is PIT AND QUARRY magazine's recently published map showing the number and location of producing plants of record in 1952. The new map lists 220 plants and 12 types of material, as compared with 80 plants and 5 products shown on a similar map published in 1947. The original map showed no listings at all in 22 of the 48 states, whereas the latest addition indicates that lightweight aggregate of some type is available in all but 9 of the states. Notwithstanding the rapid growth of the industry in the past few years, the supply situation is still critical in many sections of the country.

## Cement Review

(*From page* 124.)

mation on the plan proposed early in 1952 by Swiss interests to establish a $5,000,000 cement industry at Villeneuve, formerly Beauport East, Quebec. Atlas Realties Co., a Swiss-owned company incorporated in March 1951, was reported to have paid $572,000 for land at that location.

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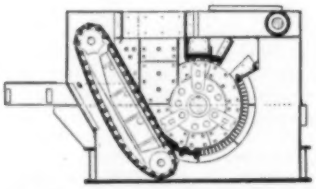

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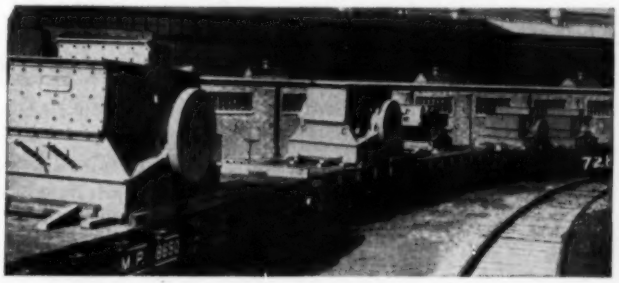

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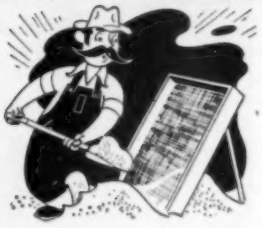
# Screenings



by William M. Avery

IT was originally one of the purposes of this department to offer its small following a few words of cheer now and then as a means of helping to ease some of the more acute pangs of modern living. Although there is surely no more appropriate time than early January to make with words of cheer, as we address ourselves to this saccharine task in preparation for your favorite journal's issue of January, 1953, it seems to us suddenly that there's just too damned much good cheer being manufactured at this point in history, and that by squeezing out a little more we could only be contributing to the further debasement of an already pretty thoroughly debased currency.

So we're afraid that those of our readers who were counting on getting well into 1953 on the strength of a buoyant assist from us will just have to stagger on unaided until such time as they can piece together a philosophy of their own. We realize the magnitude of the havoc this decision is bound to cause, but we've just learned that our one *really* faithful reader is suffering simultaneously from schizophrenia and delirium tremens, and we've accordingly decided to ease up on the oars until we're definitely cleared of responsibility for his condition.

ACCORDING to a jolly little item released to the press services by the National Geographic Society, parrotfish in the Red Sea actually bite off and chew up chunks of coral rock while feasting on the tiny sea animals that live inside. While we don't want to belittle the parrotfish, their accomplishments along that line seem hardly worth mentioning beside the crushing feats which must be achieved by the average husband before he can swallow his bride's first biscuits.

### Elementary, Holmes

"U. S. Cracks Old Glass Mystery," proclaims a headline in the Chicago *Daily News*. Lured into reading the small print by our own leanings toward the subtle-as-a-meat-axe school of punning, we learned that the Interior Department has finally succeeded in unearthing the glass factory which served colonial Jamestown some 350 years ago. Seems the place got mislaid somehow when the original settlers moved from Jamestown to Williamsburg.

Although the item doesn't come right out and say so, we get the impression that Uncle Sam has been searching high and low for it ever since. Presumably, after the Department had carried out extensive exploratory excavations on the bank of the Nile, as well as on the south approach to the Matterhorn, it occurred to some meddling bozo to do a little prodding around Jamestown. Yep, sure enough, he found it right where the colonists had left it 3½ centuries ago. We understand some of the people in the Interior Department are pretty bitter on account of they had planned to look in a lot of other out-of-the-way places before taking a crack at Jamestown.

### High Finance

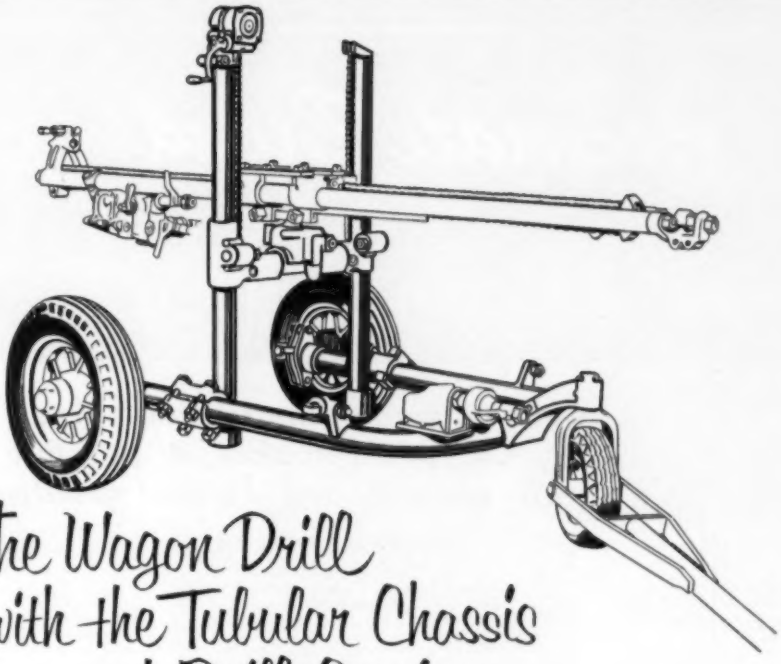
SPEAKING of delirium tremens and schizophrenia, we'd like to add a postscript to our recent item concerning government prodigality. It takes the Army and the Navy to show up the run-of-the-mine bureaucrats for the rank amateurs they are. The Navy, for example, is said to have a 50-year supply of anchors salted away (that's Navy lingo for "in storage"), and the Army is reliably reported to be gloating over a 104-year supply of front-axle gaskets for jeeps. And unification notwithstanding, it would appear that the two services are *still* not on speaking terms: whereas the Army buys jeeps for $2,702 each, the Navy kicks in $3,083.42 for the same item. Here, obviously, the system of competitive bidding has reached its zenith, but we're surprised that the Army would allow itself to be so hopelessly overshadowed in generosity.

### Chucklecrete

JUST lately we seem to have latched onto an oversupply of rollicking items concerning concrete. Before we shovel the whole gooey mess into the waste basket, and despite the considerable risk of killing our readers, we can't resist the temptation to serve up a few samples.

Like the one about the chap at Phillipston, Mass., whose most cherished possession is a concrete deer that stands on his lawn. Has to keep it covered with a tarpaulin throughout the hunting season to discourage nearsighted nimrods.

Or the ad clipping we received the other day which starts off "I mix concrete cocktails . . . ," and goes on to say that "our mixologist's concoctions are guaranteed to set well with every customer." Come to think of it, they'd probably set at least as well as some of the zombie concoctions *we* tried New Year's Eve.



# The Wagon Drill with the Tubular Chassis and Drill Carriage

G-300 Wagon Drill

The rugged tubular chassis and drill carriage of the G-300 WAGON DRILL provides rigidity and strength without unnecessary weight.

The tubular "H" structure that supports the drill carriage gives greater stability than the conventional design and minimizes vibration. The all-around sturdy construction of the G-300 maintains correct alignment at all times, insuring maximum drilling efficiency with minimum upkeep.

**G-300 Wagon Drill**

- is designed to take full advantage of the high drilling speed and strong rotation of the CP 4-inch 70-N Drifter.
- has controls conveniently centralized.
- is equipped with a specially designed feed motor and cone-gear drive for greater load-carrying capacity.
- has a heavy-duty centralizer.
- adaptable for all types of wagon drill work. Wheels can be turned at right angles to facilitate line drilling or drilling close to a ledge or wall.

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# Accurate Blending

## FEATURED IN NEW 750 T.P.H. CRUSHED STONE PLANT

***Central panel board control at Dolese Bros. Co. plant makes it possible to meet all present and future specifications.***

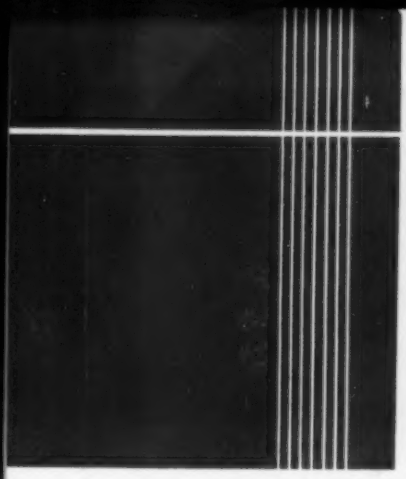
By EDWARD P. LARSEN
Western Division Manager
Robins Engineers Division
Hewitt-Robins Inc.

THE Dolese Bros. Co. of Oklahoma City, Okla., producers of limestone products since 1907, in the latter part of 1951 placed into operation at Richards Spur, Okla., one of the most modern crushing and screening plants in the world. The Richards Spur property is not a new location but has been worked throughout the years since its original opening date. The new plant is a complete replacement of the original screening and blending section, which was destroyed by fire in 1949, and a complete revamping of the plant flow diagram to meet more modern and increasingly strict requirements.

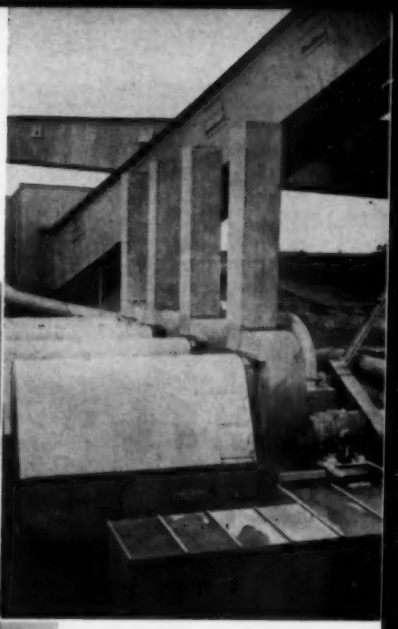
With the increasing trend toward specifications calling for more accurate preparation and blending of limestone aggregates, it was only natural that, in deciding to rebuild at Richards Spur, Dolese Bros. Co. would build a plant not only to meet the present day requirements, but also to create an operating entity of such scope as to be able to contend with virtually infinite variations of specifications. This was indeed a challenge to engineering and manufacturing ingenuity, but through the combined efforts of the staffs of Dolese Bros. Co. and Hewitt-Robins Incorporated, it is believed that the challenge has been met.

The new plant is designed for a maximum rated capacity of 750 t.p.h. of crushed stone products so routed and distributed in their flow throughout the plant that it becomes possible to comply accurately with the closest requirements of any known specifications set by federal,

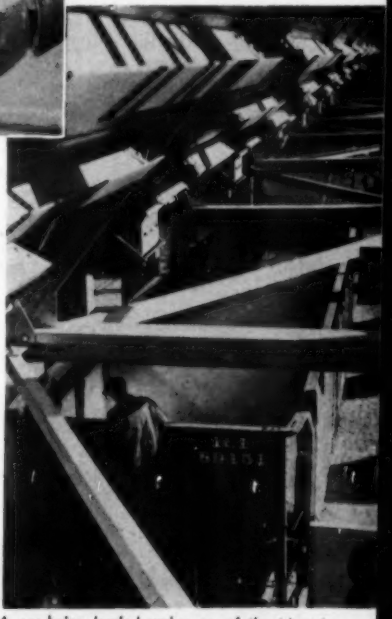
A general view of the Dolese Bros. new 750-t.p.h. crushed stone plant, with the screening and blending building at the left. At the right is the secondary crushing building. The primary crusher building and the dust collectors are in the center background.



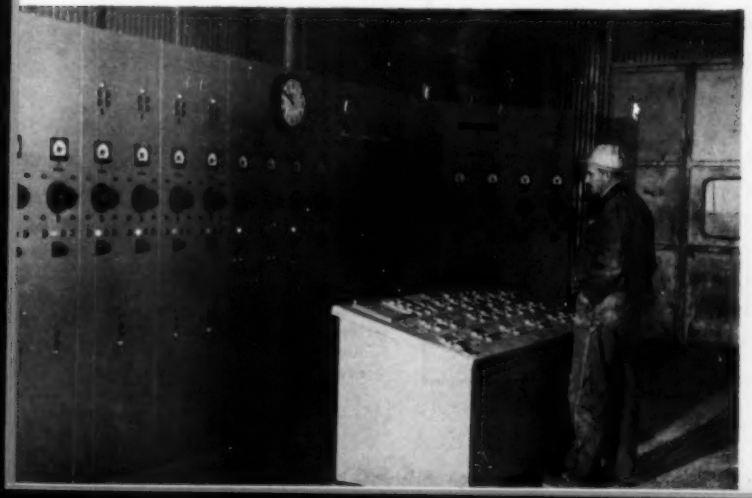
Right: The four wet-type precipitators operating in parallel which are connected to all transfer and other points creating dust.



Left: The apron feeder and controls and the 2-in. bar grizzly ahead of the 42-in. gyratory crusher.



A car being loaded under one of the 14 main bins. The highly visible bin numbers are a part of the excellent control and loading system.



The Central Control Room from which the entire plant is operated. The vertical panel is for blending control, and the benchboard is for plant flow control.

state, county, or any other local agency, public or private. As a matter of fact, the flexibility of the operations is such as to make it possible to meet almost any reasonable changing conditions which might develop in the future. This does not necessarily mean that claims are being made that a plant has been built of such a nature as to represent the acme of achievement for all time, but it merely implies that in this plant, built for today, its designers have envisioned the probable needs of the future.

All grades of commercial crushed stone can be produced in the operation, from derrick stone size down to and including agricultural limestone and dust; and in meeting the many conditions in this range, it is also possible to maintain a well balanced production. It is notable that a well balanced production is accomplished without any comprehensive use of surge piles or piles of partially processed materials.

## DESCRIPTION OF OPERATIONS

**Quarry** The flow of the plant starts in the quarry, working a stone deposit which is a domelike mountain range structure containing a high-calcium limestone with an analysis of about 90 percent calcium carbonate equivalent. The quarry face varies from a working height of about 100 ft. to a maximum slightly over 200 ft. The operating personnel, as a result of their long experience over the years, have solved successfully many of the detailed problems comprising the best methods of drilling blast holes and of primary shooting so as to accomplish heavy concentrations of blasts for clean breaking and minimizing to an extremely low percentage the need for secondary or pop shooting. Blasts are

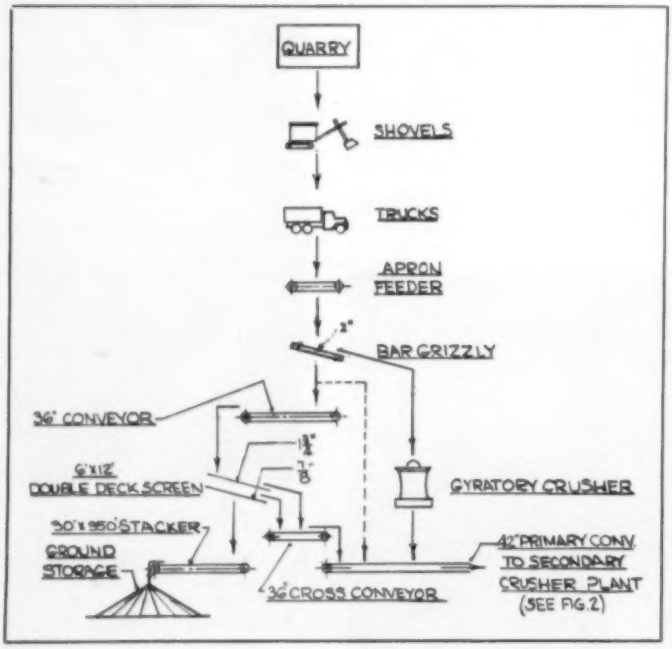
A general view of the Dolese Bros. Co. plant, showing the earthen ramp and the primary crushing building (right) and some of stockpiling facilities (left).

made at intervals of from 60 to 90 days and are of such scope as to bring down from the quarry face 150,000 to 250,000 tons of stone per blast. Details of the actual handling of the breaking down of the quarry face comprise a story in themselves; consequently they will not be discussed in detail in this article.

Rip-rap, jetty stone and derrick stone, being of a blocky nature, are mined from specific chosen locations in the quarry. Loading of this large stone is accomplished by a special A-frame rig mounted on the chassis of a heavy truck. Quarry-run stone for crushing and screening operations is excavated by two Bucyrus-Erie 120B electric shovels equipped with 4-cu. yd. buckets and a No. 80 Northwest butane-powered shovel with a 2¼-cu. yd. bucket. The haulage to the primary crusher is handled by a fleet of nine 18-ton Euclid end-dump trucks. For the flow diagram see Fig. 1.

Figure 1

**Primary Crushing** At the primary crusher the trucks are dumped on an extra-heavy-duty Worthington apron feeder. This feeder is driven by a wound rotor motor with adjustable varying speed control for quickly and readily controlling the quantity of stone being handled throughout the system, thus making it possible to maintain balanced operations throughout the plant as operating and sales demands require.




The apron feeder discharges to a heavy rail-type grizzly having 2-in. clear spaces between the bars, the oversize stone being delivered into a 42-in. gyratory crusher set to deliver a minus 8-in. product. Undersize stone through the rail grizzly can be directed to by-pass the gyratory crusher by operator's control with a gate and can be delivered to a 36-in. belt conveyor which in turn delivers to a 6- by 12-ft. vibrating screen which makes a bottom deck separation at ⅞-in. This is done when quarry conditions due to weather dictate the advisability of removing such fines from the flow to the main plant, or when contaminated stone from the quarry is not desirable or acceptable in finished products. This material is used as a salable product as road stone, for which there is a reasonably good demand.

When this minus 2-in. material has the proper characteristics for processing through the main plant, the operator can by-pass it to the 42-in. primary belt conveyor which takes the primary crusher product to the secondary crushing plant. The 6- by 12-ft. double-deck vibrating screen used in circuit with the 36-in. conveyor for screening out the road stone material is equipped with cloths having 1¼-in. square openings and ⅞-in. square openings on the bottom deck. The top deck is a relieving deck only. The overs from this screen are delivered to the 42-in. primary belt conveyor to the secondary crushing station, and the throughs are stockpiled by a 30-in. by 350-ft. stacker conveyor.

**Secondary Crushing** The 42-in. primary belt conveyor from the primary crusher delivers at its head end into the secondary crusher building and in the flow diagram the stone from this conveyor is first screened over a 6- by 12-ft. double-deck vibrating screen mounted over three surge bins arranged in a row over the secondary crusher. This screen has 4-in. square openings

The 42-in. conveyor (No. 1) which carries minus 8-in. product of the primary crusher to the secondary crushing building.

Left: The 5½-ft. standard cone crusher in the secondary crusher building, where four 4-ft. short-head cones are also located.

on the top deck and 3½-in. on the bottom deck. The plus products from the two decks divide the load between five secondary crushers. Plus 4-in. stone is directed to the south surge bin (No. 1), 4-in. to 2½-in. stone is directed to the middle surge bin (No. 2), and minus 2½-in. stone goes directly to 42-in. main conveyor (No. 1). The three surge bins above the secondary crushers have a capacity of 220 tons each.

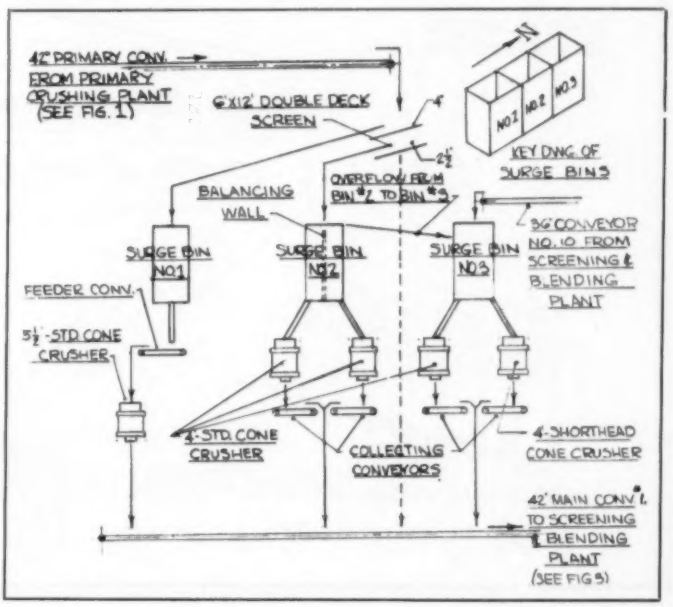
Plus 4-in. stone from the No. 1 surge bin is fed to a 5½-ft. Symons standard cone crusher by means of a variable speed belt feeder conveyor, and 4- to 2½-in. stone from the No. 2 surge bin goes by chutes to two 4-ft. Symons standard cone crushers. The No. 3 surge bin is used for material being recirculated for recrushing; it delivers by chute on one side to a 4-ft. Symons standard cone crusher and on the opposite side by chute to a 4-ft. Symons short-head cone crusher. Each of the chutes to the 4-ft. crushers is equipped with an electric cut-off switch interlocked into the system so as to effect automatic control of the flow. The discharge of the stone from the 5½-ft. cone crusher is directed to 42-in. main conveyor No. 1, and the discharge from the four 4-ft. crushers is delivered by cross conveyors also discharging to main conveyor No. 1.

Each crusher is operated at a different setting so as to make a combination of sizes to be screened into the balancing bins in the screening plant for later blending. In this way, it is possible to regulate percentages of sizes to suit blending demands.

Surge bin No. 2 over the two 4-ft. standard cone crushers is designed with a dropped partition wall so that if there is any excess in either of the two compartments, it will flow over into the other compartment and the crushing capacity of the product from these two crushers can be maintained on a balanced basis. The No. 2 surge bin can also overflow any accumulating excess into surge bin No. 3 to aid further any balancing required in secondary crushing. For the flow diagram see Fig. 2.

**Screening and Blending** The 42-in. main conveyor belt (No. 1) is about 350-ft. centers with a lift of about 87 ft. and delivers at its head end to a 42-in. cross belt conveyor (No. 2), thus bringing material into the center of the screening and blending station. Conveyors No. 1 and 2 are designed to handle a maximum rated capacity of

Figure 2



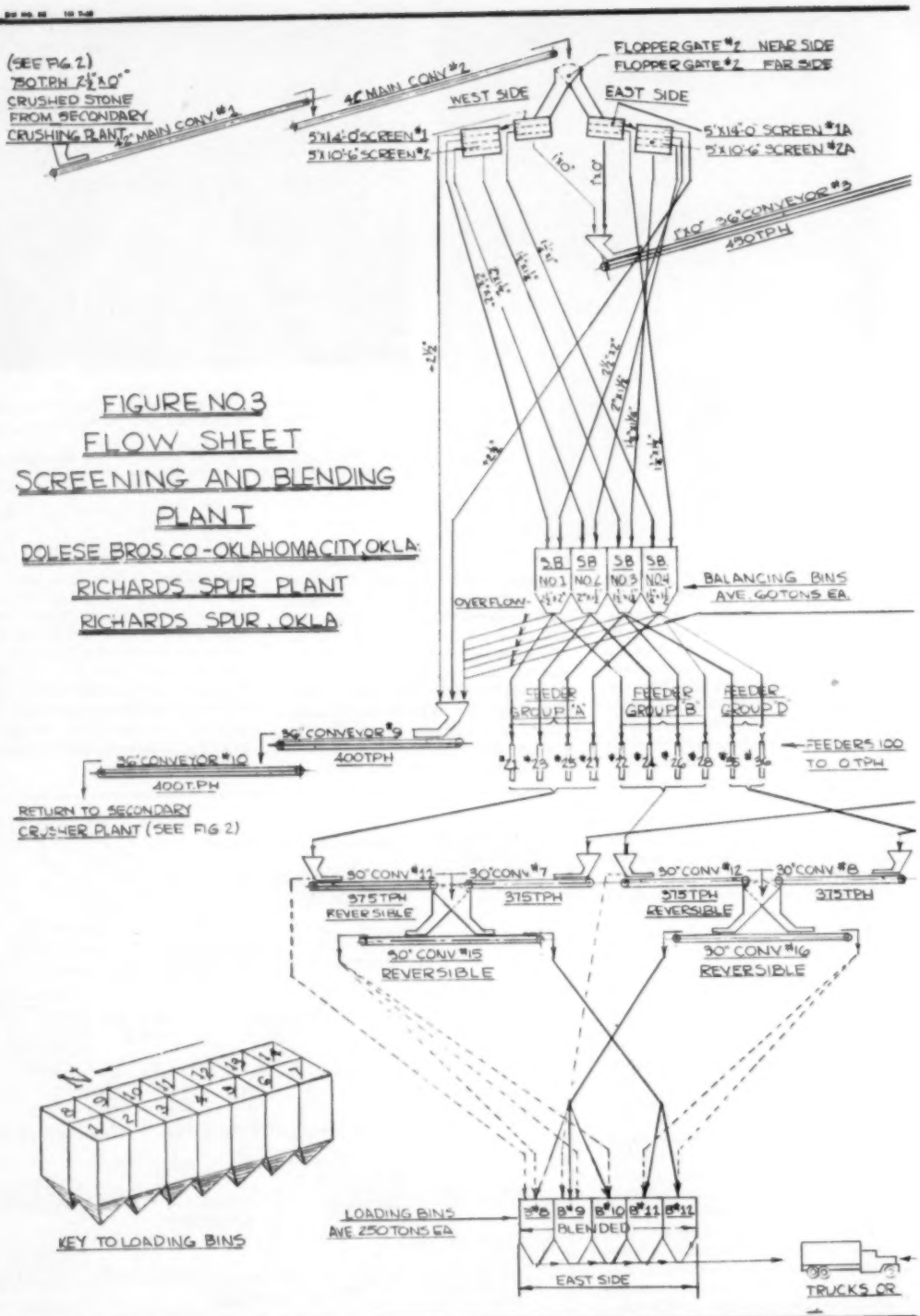
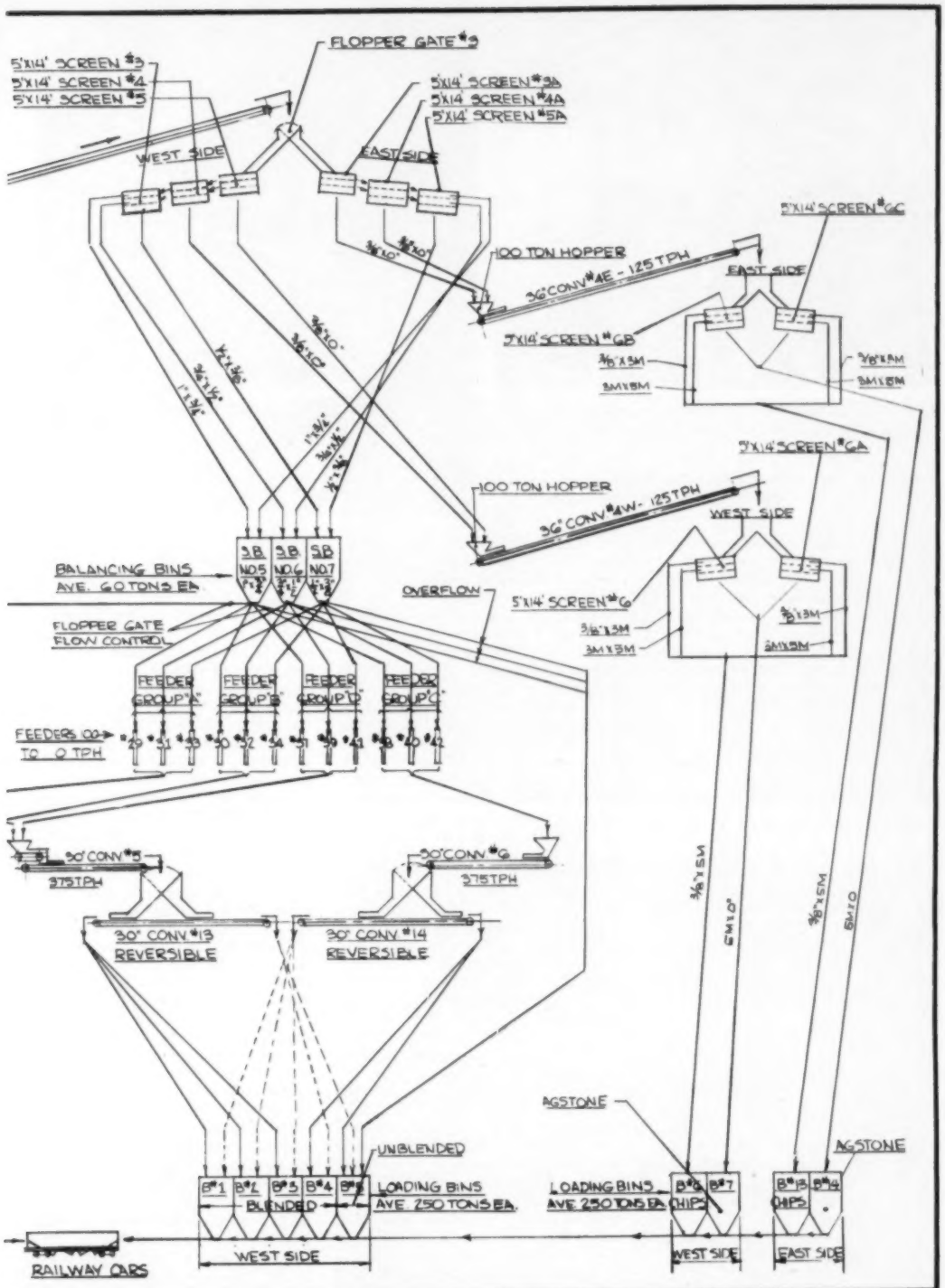
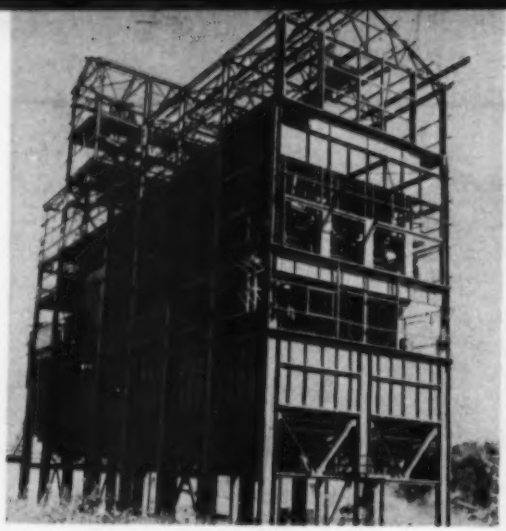



FIGURE NO.3
FLOW SHEET
SCREENING AND BLENDING
PLANT
DOLESE BROS. CO - OKLAHOMA CITY, OKLA.
RICHARDS SPUR PLANT
RICHARDS SPUR, OKLA.


5'X14' SCREEN #3
5'X14' SCREEN #4
5'X14' SCREEN #5
FLOPPER GATE #3
5'X14' SCREEN #3A
5'X14' SCREEN #4A
5'X14' SCREEN #5A
WEST SIDE
EAST SIDE
5'X14' SCREEN #6C
100 TON HOPPER
36" CONV #4E - 125 TPH
EAST SIDE
5'X14' SCREEN #6B
3/8"X5M
5M X 8M
3/8"X4M
8M X 8M
5'X14' SCREEN #6A
100 TON HOPPER
36" CONV #4W - 125 TPH
WEST SIDE
3B NO5
3B NO6
3B NO7
BALANCING BINS
AVE. 60 TONS EA
OVERFLOW
5'X14' SCREEN #6
3/8"X3M
3M X 3M
3/8"X3M
3M X 3M
FLOPPER GATE
FLOW CONTROL
FEEDER GROUP 'A'
FEEDER GROUP 'B'
FEEDER GROUP 'D'
FEEDER GROUP 'C'
FEEDERS 100 TO 0 TPH
#49 #51 #53 #50 #52 #54 #51 #55 #41 #53 #40 #42
30" CONV #5
375 TPH
30" CONV #6
375 TPH
30" CONV #13 REVERSIBLE
30" CONV #14 REVERSIBLE
3/8"X5M
6M X 10"
3/8"X5M
8M X 10"
AGSTONE
AGSTONE
UNBLENDED
B#1 B#2 B#3 B#4 B#5 B#6
LOADING BINS
BLENDED
AVE. 250 TONS EA.
LOADING BINS
AVE. 250 TONS EA.
B#6 B#7
CHIPS
B#13 B#14
CHIPS
WEST SIDE
WEST SIDE
EAST SIDE
RAILWAY CARS



A view of the screening and blending building before it was enclosed, showing all-steel construction and compact arrangement of equipment.

Right: In this view the 36-in. recirculating belt from the roadstone scalper is shown discharging on 42-in. conveyor No. 1 to the secondary crusher building.

750 t.p.h., and provisions have been made in the design for possible surges, as they are a part of the closed circuit screening and recrushing system and therefore subject to possible overloading. The screening station proper is designed on a dual basis, with parallel screens symmetrically arranged about the centerline of the long axis of the building.

A bifurcated chute with a flop gate is provided at the head end of conveyor No. 2 so that the total tonnage can be divided between the two halves of the screening station or reduced tonnage can be delivered to either half of the station. It is obvious that if there is a reduced demand on the plant, it would be advisable to operate only one-half of the system. On the other hand, a dualized screening station offers the opportunity of operating throughout either half of the station, should there be a need for major maintenance or repair work on any unit in the opposite half.

The stone discharged from the head end of conveyor No. 2 is delivered to two 5- by 14-ft. Robins Eliptex double-deck vibrating screens, No. 1 and No. 1-A. These screens are equipped with 1¼-in. openings on the top deck and 1-in. openings on the bottom deck. The plus 1¼-in. stone is directed to two 5- by 10½-ft. Robins Eliptex triple-deck vibrating screens. The 1¼- to 1-in. product from between the decks is delivered directly to balancing bin No. 4 as a finished product and the 1- to 0-in. material through the bottom deck is directed to 36-in. conveyor No. 3 for delivery to other screens at the south end of the plant which will be described later.

Plus 1¼-in. material from screens No. 1 and 1-A is directed to screens No. 2 and 2-A, as previously described. Triple-deck screens No. 2 and 2-A are equipped with 2½-in. openings on the top deck, 2-in. openings on the middle deck, and 1½-in. openings on the bottom deck. Plus 2½-in stone scalped off over the top decks is delivered by chute to 36-in. conveyor No. 9 for return to the secondary crushing station for re-crushing. The 2½-in. to 2-in, 2- to 1½-in., and 1½- to 1¼-in. products are all delivered to separate balancing bins No. 1, No. 2, and No. 3 as finished products.

The 1- to 0-in. stone passing through screens Nos. 1 and 1-A to 36-in. belt conveyor No. 3 is discharged at the head end of conveyor No. 3 into a bifurcated chute for distribution down the two sides of the plant on two batteries of three screens each, 5- by 14-ft. Robins Eliptex double-deck units. The six screens in the two batteries are identified by the numbers 3, 4, and 5 on the west side, and 3-A, 4-A, and 5-A, their opposite counterparts, on the east side. The top deck of each of these screens is equipped with ¾-in. square openings, and the bottom decks of No. 3 and No. 4, and No. 3-A and No. 4-A are equipped with ⅜-in. openings. The bottom decks of screens No. 5 and No. 5-A are equipped with ½-in. openings. The overs from all six screens, 1- to ¾-in. in size, are delivered to balancing bin No. 5 as finished material. The overs from the ½-in. decks on screens 5 and 5-A are delivered to balancing bin No. 6 as ¾- to ½-in. finished material, and the throughs from bottom decks of screens 5 and 5-A are delivered to balancing bin No. 7 as ½- to ⅜-in. finished material. The ⅜- to 0-in. material passing through the bottom decks of screens No. 3 and No. 4 is collected in a 100-ton surge hopper and delivered to 36-in. conveyor No. 4-W for transference to the west half of the fines screening end of the plant, and ⅜- to 0-in. throughs from screens No. 3-A and No. 4-A are delivered to another 100-ton surge hopper to 36-in. conveyor No. 4-E, which delivers to the east half of the fine screening side of the plant. Conveyors No. 4-E and No. 4-W function as feeders, each delivering to a pair of 5- by 14-ft. double-deck Robins Eliptex screens equipped with 3-mesh openings on the top and 4-mesh openings on the bottom deck. Screens No. 6 and No. 6-A are fed by conveyor 4-W, and screens 6-B and 6-C are fed by conveyor 4-E. The overs from both decks of these screens are combined and delivered as a mixed product into main loading bins No. 6 and No. 13. The 4-mesh agstone material through the bottom decks of these screens is delivered to main loading bins No. 7 and No. 14. Provisions are made in the layout so that in the future it will be possible to separate the plus 3-mesh and plus

In the screening and blending building, stone from the secondary crusher building is split to two 5- by 14-ft. screens, No. 1 and 1A, followed by the two 5- by 10½-ft. 3-deck screens in foreground.

5-mesh products into separate bins or to two additional conveyors running to the north for blending these fines with other products prepared in primary blending.

Each of the seven balancing bins identified with the numbers SB-1 to 7 inclusive is equipped with an overflow chute arrangement so that if there should be any excess, it automatically enters the overflow chutes. The overflow from balancing bins SB-1 to 4 inclusive is delivered to conveyor No. 9 for return to the secondary crushing station, and overflows from SB-5 to 7 inclusive are directed to main loading bin No. 5 as an unblended product.

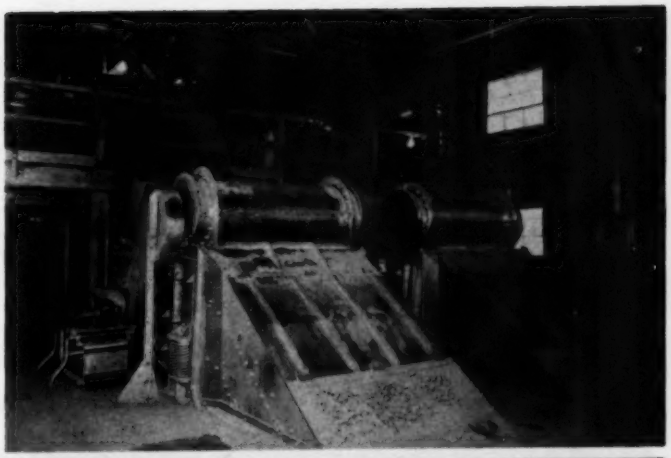
The return of all re-circulating material comprises plus 2½-in. stone from the scalping operation at screens No. 2 and 2-A, and any excess materials from finished products balancing bins SB-1 to 5 inclusive, is by means of 36-in. conveyor No. 9, which in turn delivers to 36-in. conveyor No. 10. This conveyor in turn delivers to the north end surge bin No. 3 in the secondary crushing station serving the combination of a 4-ft. Symons standard cone crusher and a 4½-ft. Symons short-head cone crusher. For the flow diagram see Fig. 3.

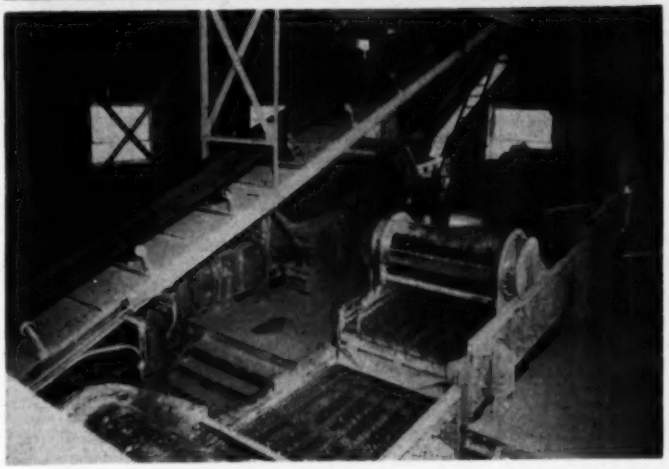
**Loading** Main loading bins No. 1 to No. 14 are in two parallel rows of seven each. Bins 1 to 7 inclusive are on the west side and Bins 8 to 14 inclusive are on the east side. Outlets from all bins are specially-designed counterweighted duplex-type gates and deliver to railroad cars or trucks below in the two track lines provided at grade under the bins.

Cars are switched into either of these tracks by a dispatcher at the empty car yard which is about 800 to 1,000 ft. north of the plant. Cars run in under gravity on a slightly down-graded track.

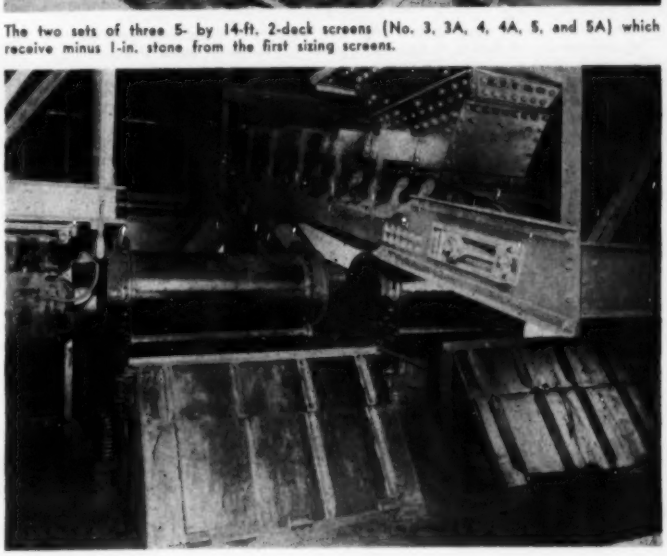
Bins 1 to 5 inclusive contain blends of material with sizes up to a maximum passing 1½-in. square opening and bins 8 to 12 inclusive contain blends of material with sizes up to a maximum passing 2½-in. square opening. Normally bin No. 5 is used for unblended products resulting from overflow of products from balancing bins SB-5, 6, and 7. Bins 6 and 13 are used for chips and bins 7

One of two pairs of 5- by 14-ft. 2-deck fine sizing screens (No. 6 and 6A) which receive minus ⅜-in. material from screens No. 3 and 4. The other pair (No. 6B and 6C) are fed from screens No. 3A and 4A.





The two sets of three 5- by 14-ft. 2-deck screens (No. 3, 3A, 4, 4A, 5, and 5A) which receive minus 1-in. stone from the first sizing screens.



Split chutes and back ends of 24-in. belt feeders from balancing bins which make possible remote controlled blending of any desired sizes.

and 14 for agstone. Overproduction of products from bins 6, 7, 13, and 14 are normally stockpiled by trucks as required. Provisions are made for a possible future stockpiling conveyor system to replace these trucks.

## BLENDING OPERATIONS

The foregoing description covers the complete flow of materials through all of the processes of crushing and screening; and we now come to the most interesting part, the blending operations and their control. The design and control of the blending operations and the control is an outstanding installation, the most modern of its kind. It embodies a combination of modern equipment and control, engineered to result in simplicity of function, close accuracy in size blending to meet infinite variations in aggregate specifications, minimum labor, and the maximum of safety.

The basic conditions set forth by Dolese Bros. Co. involved the desire for a centrally-controlled operation of simple concept and accurately-controlled aggregate blending to meet the closest requirements of any specification which could be set by federal, state, county, or any other local agency, public or private. To provide the answers to the two fundamental requirements, the basic condition of simplicity was considered the main theme. Simplicity, as such, naturally involved the elimination of complications of any kind by giving consideration to the use of apparatus and electrical equipment best suited to complete understanding on the part of an ordinarily intelligent operator, and avoidance of the need for highly-skilled and trained engineers.

For purposes of assembling blends to meet the many variable conditions which will be encountered in an infinite variety of specifications, a system of 22 variable speed feeders, each of which can be independently controlled in capacity from zero to 100 t.p.h., was introduced. They are arranged in four basic banks as follows:

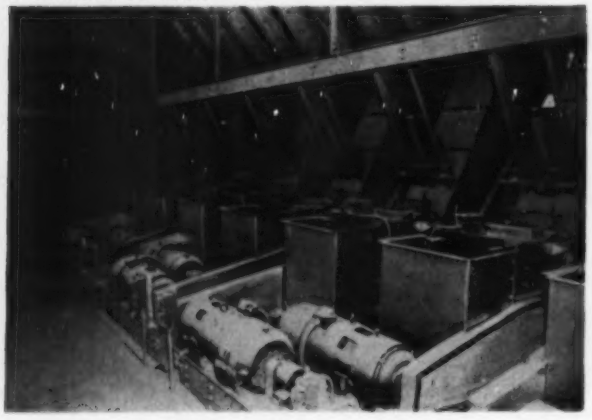
| Balancing Bin | Size of Product | No. of Feeders |
|---|---|---|
| 1 | 2½ to 2 in. | 2 |
| 2 | 2 to 1½ in. | 2 |
| 3 | 1½ to 1¼ in. | 3 |
| 4 | 1¼ to 1 in. | 3 |
| 5 | 1 to ¾ in. | 4 |
| 6 | ¾ to ½ in. | 4 |
| 7 | ½ to ⅜ in. | 4 |
| | | Total 22 |

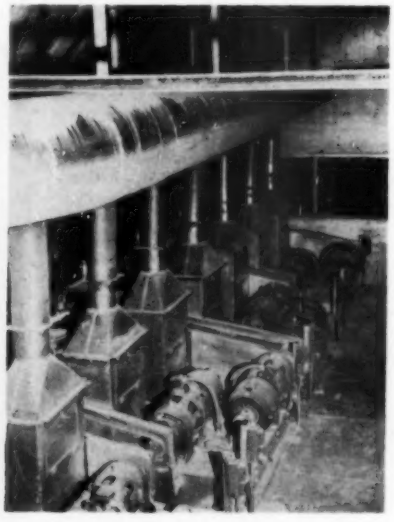
These feeders are arranged in four banks, making it possible to blend, if desired, four simultaneous separate mixes. There are two banks of seven feeders, each of which can collect all or any part of the products from balancing bins 1 to 7. There is one bank of five feeders which can collect the combination of size from 1½ in. down to ⅜ in. from balancing bins 3 to 7 inclusive, and one bank of three feeders which can collect the size from 1 in. down to ⅜ in. from balancing bins 5, 6, and 7.

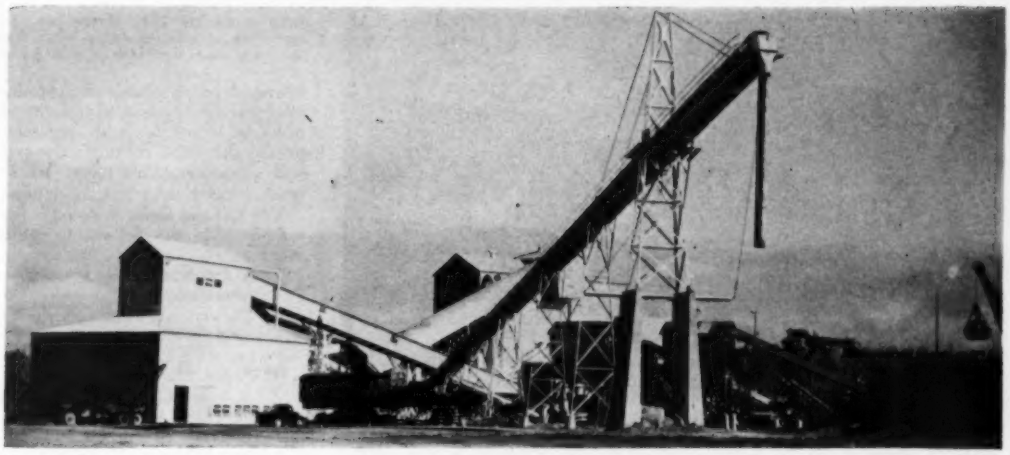
The first feeder group "A", comprised of feeder conveyors No. 21,

Right: One bank of seven feeders after dust hoods and ducts were installed. The arrangement of feeders in four banks makes it possible to blend, if desired, four simultaneous separate mixes.

Front ends of some of the 22 blending belt feeders before dust hoods were installed. Note the depth control switches on top and tachometer generators on the ends of the motors.







Another view of the plant, with the 30-in. by 350-ft. stacker conveyor in the foreground. This stockpiles road stone from the primary crusher building.

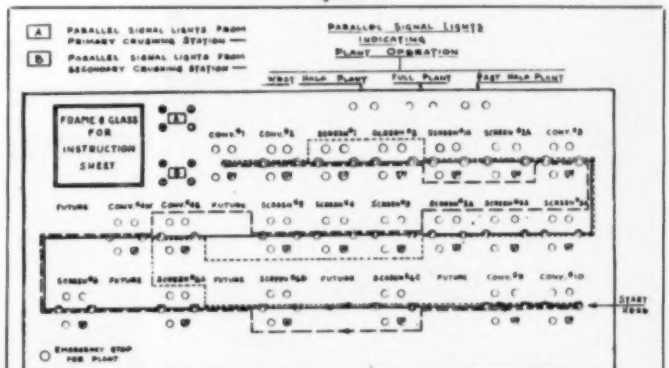
23, 25, 27, 29, 31, and 33, delivers to 30-in. collecting conveyors No. 7 and 11. These conveyors in turn deliver to 30-in. reversible shuttle belt conveyor No. 15. Conveyor No. 15 can then deliver to car and truck loading bins No. 8 to 12 inclusive on the east side of the plant. The second bank of seven feeders in Group "B" are numbered 22, 24, 26, 28, 30, 32, and 34; they deliver to 30-in. collecting conveyors No. 8 and No. 12, and these collecting conveyors in turn deliver to 30-in. reversible conveyor No. 16, which in turn can also deliver to loading bins No. 8 to 12 on the east side of the plant. Conveyor No. 12 is made reversible so that it can deliver its blended combination as additional blending to any special product which may be prepared in main bin No. 9. Similarly conveyor No. 11 is made reversible for added blending to any special product in bin No. 8.

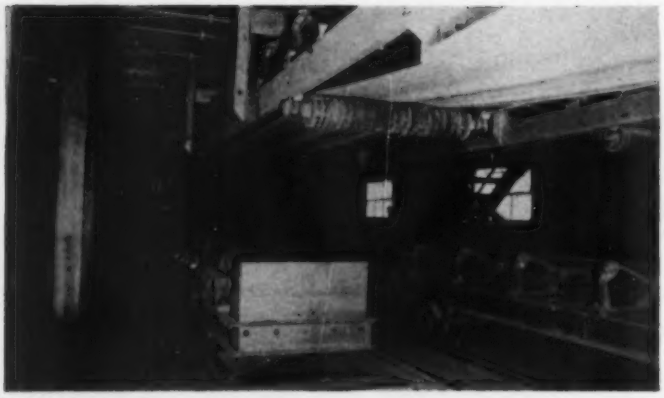
Feeder group "C", comprised of feeder conveyors numbered 38, 40, and 42, delivers to 30-in. collecting conveyor No. 6, which in turn delivers to 30-in. reversible shuttle belt conveyor No. 14. This shuttle conveyor can deliver the product to loading bins numbered 1 to 5 inclusive. The fourth group of five feeders identified as Group "D" is comprised of feeder conveyors 35, 36, 37, 39, and 41. These deliver to 30-in. collecting conveyor No. 5 which in turn delivers to 30-in. reversible shuttle belt conveyor No. 13 which can also deliver to loading bins No. 1 to 5 inclusive on the west side of the plant.

The 22 belt feeders have been designed as completely independent and separate units. Each consists of a 24-in. conveyor with head and tail pulleys at 4-ft. 6-in. centers, all assembled on a unit frame and fitted with endless belts. When the occasion arises for maintenance, repairs, or replacement, it is a simple matter to unbolt the unit and replace it with a spare unit. All of these unit feeders are completely interchangeable, keeping the need for spare units down to the minimum. To prevent any excessive variation in the predetermined depth of the material on the feeders, depth control fingers, connected to limit switches, have been provided. Should the depth of the material vary excessively, the offending unit will be stopped by the action of the depth control fingers, and in doing so all units included in that particular bank are stopped simultaneously. This prevents the possibility of the passage of undesirable mixes into the loading bins. These feeder conveyors are driven by General Electric counter-torque gear motor units through sprockets and chains to facilitate easy disassembly in the event of having to remove a unit. Control of the speed of these gear motor units is by means of General Electric Type V3B speed variator power units. Each drive unit has a tachometer generator on an extension of the motor shaft on the high speed side of the motor for interconnection to a stepless wire-wound control rheostat on the panel board in the Central Control Room.

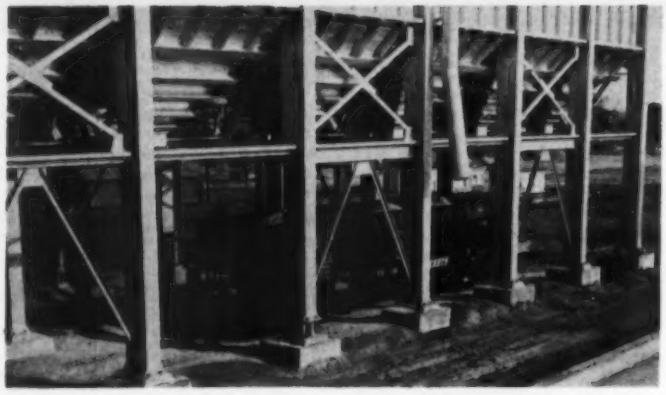
Central control is located in a dust-proofed, air-conditioned room, at which point the operator is fully

Figure 4





Some of the ten 30-in. shuttle belt conveyors, six of them reversible, which feed finished products into the main loading bins.



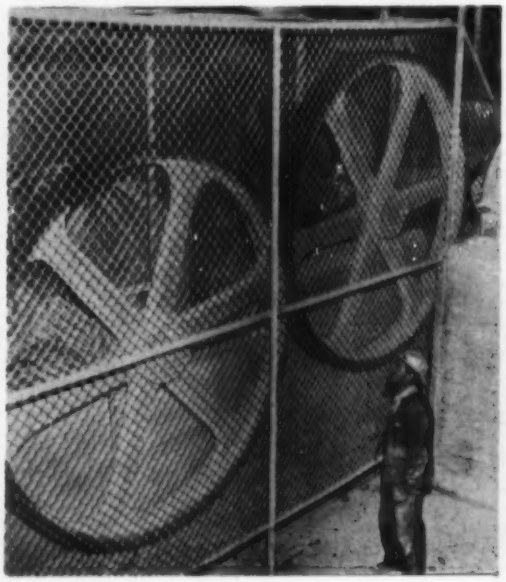
The main loading bins are in two rows of seven each. Counterweighted duplex-type gates load into cars or trucks below.

informed on all phases of operation and production, and he can at all times be in contact with any other part of the plant, including the general superintendent's office, by intercom and plant telephone systems.

The Central Control Room is furnished with the following equipment:

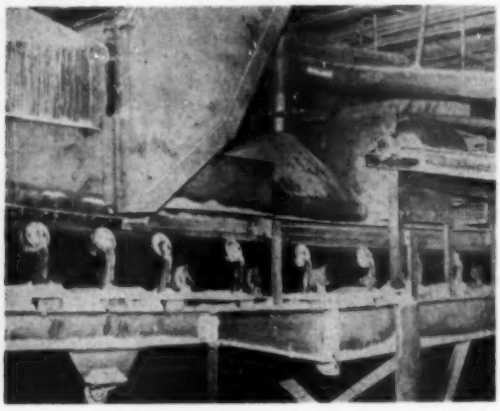
1. A unit-type indoor transformer substation.
2. Unit-type control cabinets for all electric motors in the screening station.
3. A benchboard for the control of material flow through the screening and blending apparatus.
4. Panel boards on which are mounted the following: instruments for setting tonnages and for the control of 22 blending belt conveyor feeders and related conveyors; indicating lights for knowledge of quantity in seven balancing bins above the 22 blending feeders; indicating lights for any overflow conditions which may develop in balancing bins; indicating lights for condition of 14 car and truck loading bins; and controls for the air cleaning and conditioning system for the Central Control Room.
5. A secondary grating floor above the Central Control Room to provide space for the 22 varispeed control units for the belt conveyor feeder drives.

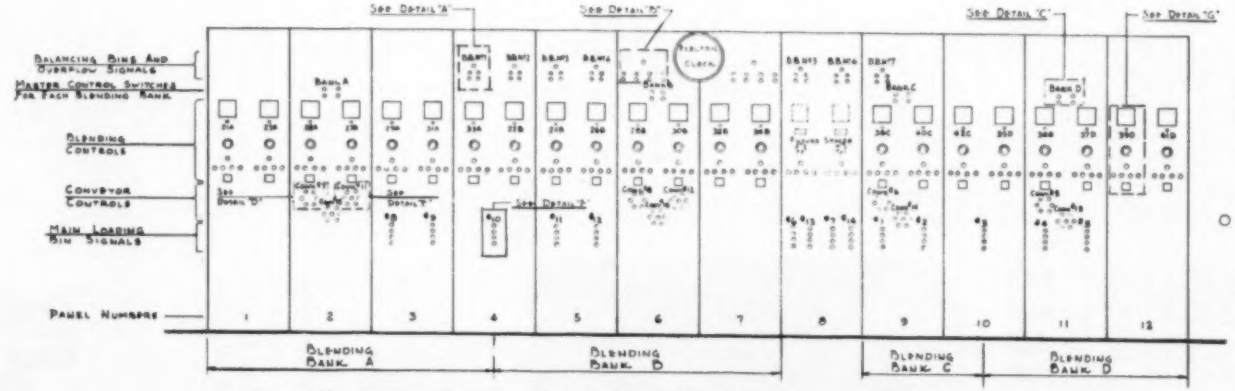
The Central Control Room is further enhanced by the use of fluorescent strip lighting fixtures, and by a



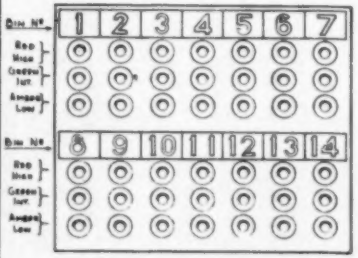
Left: Safety guard at drive of 42-in. main belt conveyor No. 1 to screening building.

Typical dust hoods over the conveyor at discharge points. This photograph was taken before the dust collectors were started.






VERTICAL CONTROL PANEL IN CENTRAL CONTROL ROOM

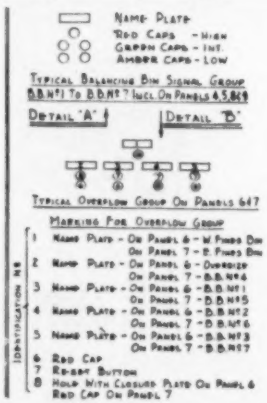


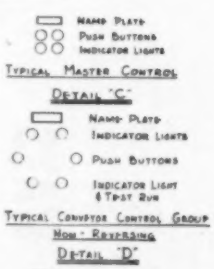

Main Loading Bin Signal Arrangement
For Car Yard Dispatcher On Outside At North End Of Plant

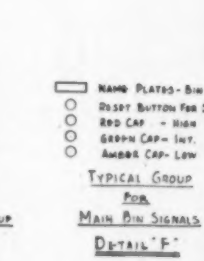
Additional Signal Stations
Red Caps – High
Green Caps – Intermediate
Amber Caps – Low
Typical Signal Arrangement At Car Loading Station One Group Each At Bins 1 To 14 Incl. On Centerline Of Bin On Inner Side Facing Operator On Platform Below Bin

Ready Button For Siren
Red Caps – High
Green Caps – Intermediate
Amber Caps – Low
Typical Signal Arrangement For Shuttle Operator One Group Each At Bins 1 To 14 Incl. Placed On Outer Lines Of Columns At Convenient Locations Adjacent To Each Bin On Shuttle Operators Level

Additional Signal Stations For Main Bin Conditions All Tied In Series With Main Loading Bin Signals On Vertical Control Panel


Name Plate
Red Caps – High
Green Caps – Int.
Amber Caps – Low
Typical Balancing Bin Signal Group
B.B.N°1 To B.B.N°7 Incl. On Panels 4,5,&6
Detail "A"
Detail "B"
Typical Overflow Group On Panels 6&7
Marking For Overflow Group
Identification Nos.
1 Name Plate – On Panel 6 – W. Finish Bin On Panel 7 – E. Finish Bin
2 Name Plate – On Panel 6 – Overdrive On Panel 7 – B.B.N°6
3 Name Plate – On Panel 6 – B.B.N°1 On Panel 7 – B.B.N°5
4 Name Plate – On Panel 6 – B.B.N°2 On Panel 7 – B.B.N°6
5 Name Plate – On Panel 6 – B.B.N°3 On Panel 7 – B.B.N°7
6 Red Cap
7 Re-set Button
8 Hold With Closed Plate On Panel 6 Red Cap On Panel 7





Name Plates – Bin Nos.
Reset Button For Siren
Red Cap – High
Green Cap – Int.
Amber Cap – Low
Typical Group For Main Bin Signals
Detail "F"

VERTICAL CONTROL PANEL AND SIGNAL ARRANGEMENT
DOLESE BROS. CO. OKLAHOMA CITY, OKLA.
RICHARDS SPUR PLANT RICHARDS SPUR, OKLA.

FIGURE 5

CONTRACT NO. 1101-C

complete air cleaning and conditioning system suitable to outside temperatures.

The screening and blending station flow diagram is as previously described and as illustrated in Fig. 3. Main conveyor No. 1 and cross conveyor No. 2 from the secondary crushing station are designed for a maximum rated capacity of 750 tons per hour. Screening equipment is provided to produce ten basic sizes and to scalp oversize for return to the secondary crushing station. The first seven of the basic sizes ranging from minus 2½-in. to plus ⅜-in. are delivered to seven balancing bins, and minus ⅜-in. stone is delivered to the fines screening units for the preparation of chips and agstone.

Although the plant can be operated at full plant or half-plant, the blending feeders with their related units are always 100 percent available for operations.

## PLANT CONTROL

All operations for plant control are observed and handled on the benchboard. (See Fig. 4.) At the start of operations it is determined that the whole plant or either half is to be operated. The gate in the chute at the head end of conveyor No. 2 is then set in its proper position. This gate is provided with a switch which operates the proper indicating lights on the benchboard and at the same time activates the control circuit for only those units which are going to be used. There are three sets of parallel indicating lights, and when they are on, the operator in the Central Control Room will then know which plant function to start. Before starting the station, however, the primary and secondary crushing stations are alerted on a standby basis, and their readiness is indicated on the benchboard by two sets of parallel indicating lights (one pair for each). We now have three sets of lights burning —one set indicating 100 percent of the east half or west half of the plant to be operated—one set indicating "ready" at secondary crushing station, and one set indicating "ready" at the primary crushing station.

The operator can now start the flow of material through the screening and balancing bins. A unique feature of the benchboard design is that it is impossible for the operator to start incorrectly. Colored lines for procedure in starting are provided so that all the operator is required to do is to follow the proper colored line. Note from the diagram of the benchboard in Fig. 4 that the central line is followed for full operation, and either of the outside lines are followed for one-half plant operation. Attention is called to the fact that at no time do these lines cross or intersect one another, thus minimizing the possibility of confusion.

To start full plant, the operator begins at the lower right hand corner of the board, starting recirculating conveyor No. 10; he proceeds along the centerline, taking each button in turn until he reaches the last unit in circuit, namely, conveyor No. 1. After conveyor No. 1 starts, a signal is actuated in the secondary crusher station, and that operator starts his sequence. When running his last unit, he actuates signal to primary station, and this operator in turn starts the last units to start flow of stone through the plant.

As the operator in the Central Control Room proceeds along the line and a running light does not come on, he cannot proceed until he determines the cause for non-running. A unit may not be able to start for a number of reasons, but the principal protection afforded by this feature is that a mechanic may have locked out a given unit for maintenance or other reasons, and he is then fully protected from an accident by the fact that the operator in the Central Control Room cannot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PULVERIZERS • CONVEYORS • LOADERS

# More Information, Please

## CHECK AND MAIL THE CARD BELOW FOR ADDITIONAL INFORMATION ON NEW MACHINERY AND SUPPLIES

1. **Wagner Tractor Loaders. Model WM-3. Form No. 174A.** This four-page folder covers the loaders built especially for use on Case VA, VAC, and VAI tractors. The mounted unit is shown and the specifications are given on the cover. The inside spread shows mounted units on two models of tractors while line drawings show the many attachments available such as scoops, blades, forks, crane hooks, and snow plows. The text presents the general features of the line and indicates some of the types of service for which it is adapted. Wagner Iron Works.

2. **Standard Asphalt Plants. Bulletin No. 525.** The front cover of this four-page folder shows an asphalt plant in full color. The back cover shows a plant and close-up views of some of the important features. The inside spots some of the installations on an outline map and shows some of the unitized components that make up a plant. Standard Steel Corporation.

3. **Rock Edge Split Stone.** This small size folder gives dimensions and pictures of various types of split concrete masonry for stone effects. The text points out the kinds available and the value of using them. Advance Cast Stone Company.

4. **Specify Universal Vibrating Screens. Bulletin No. 125.** The first page of this folder shows installation pictures and lists the points of the screens. The center pages show the eight models and suggest applications for each and point out the operating features of the line. Specifications take up the fourth page. Universal Vibrating Screen Company.

5. **The Columbia Line. The New Model 12 Fully Automatic.** A three-block machine is the subject of this folder. The machine is shown in several views and the important features are keyed to a listing. General points are covered in the text. Accessories such as offbearers and pallet return are covered on the back page. Columbia Machine Works.

6. **Allison Torqmatic Converters. ALD-SA1004.** This six-page folder uses charts, graphs, photos and drawings to present the facts on a hydraulic torque converter. Photos show typical applications such as cranes, locomotives, shovels, and drills. Preliminary engineering data is included as well as figures on power output. Advantages are cited and installation data are included. Allison Division, General Motors Corporation.

7. **Waylite. Suggested Details of Waylite Masonry Wall Construction.** Ten of the sixteen pages of this bulletin are devoted to scale drawings of typical masonry wall constructions using concrete blocks. Footings, framings, control joints, intersecting walls, ducts and conduits, floor and roof framing, cavity wall opening and corners are some of the page headings. Two pages show photos of finished walls for exterior and interior. The back cover has illustrations of some outstanding use of Waylite blocks in interior use. The Waylite Company.

8. **S.R.P. Sure Rust Prevention.** This folder shows surfaces attacked by rust and others that are protected with several kinds of coatings. Other illustrations show typical uses for the material and the testing machine used for rapid weathering of paints and other protective materials. The text explains the action of the material in inhibiting rust and corrosion. A list of prominent users is included and directions for applications and the details of the kinds of coatings are given. L. Sonneborn Sons.

9. **Concrete Facts From Praschak Machine Company.** Illustrations of the plant and the officials of the firm fill the first page of this mailing folder. The center pages illustrate the types of machines produced such as block machines, hammermill, elevator, conveyor, rotary screen, mixer, and lift truck. Features are pointed out and prices are given. The back page is a questionnaire designed to help in maintaining the mailing list. Praschak Machine Company.

10. **Tournarocker. Form No. TK-157.** The twenty-eight pages of this colorful bulletin gives complete information on a rear dump haulage unit. The advantages of the style of unit are given and the details of the machine are taken up in a series of two-page spreads. Such subjects as tires, dumping, power transmission, differential, turning, electric controls, brakes, and operation are covered. Two pages show some of the attachments that can be used with the prime mover and another spread shows typical action pictures of the Tournarocker in operation in all parts of the world. Sizes are shown and described. R. G. LeTourneau, Inc.

11. **The Martin-Decker Lift Truck Scales.** A scale that is connected to the hydraulic system of a lift truck is covered by this single page leaflet. The dial type scale is illustrated as well as the method of mounting. The advantages of weighing as the material is stacked or transported are cited such as avoiding floor overloading, regulation of truck loads, prevention of elevator overloads, and weight information on quantity shipping. Simple installations are included. Martin-Decker Corporation.

12. **Cedarapids Schrock Motorized Head Pulleys.** This bulletin introduces a new type head pulley—one that has the motor inside the pulley shell. Advantages, such as protection of motor and gears, ease of maintenance, simplicity of repair or replacement, are covered. Illustrations show the construction of the pulley and the operation. Technical features of the pulley are given as well as information on the results of users. The questions that arise in introducing a new product are covered so that the prospective user is given complete information on sizes, parts, installation, etc. Iowa Manufacturing Company.

13. **Leeman Power Shovel. HF 10.** A power shovel and tractor combined is covered in this six-page mailing folder.



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# More Information, Please

The operation of the bucket, by power crowd cylinder, in digging is explained. Features of construction and application photos are included. One page is devoted to complete specifications of the shovel and engine, while features of the machine are listed near the illustrations. Lessmann Manufacturing Company.

14. **Bramford Vibrators and Accessories. Catalog No. 48.** This binder-type catalog contains 14 pages of information and a price list. The catalog pages cover a complete line of pneumatic vibrators for such applications as hoppers, bins, chutes, screens, concrete forms, block machines, etc. Many different models are shown and described and specifications are included for the range of sizes in each model. Accessories—valves, oilers, clamps—are pictured and explained. New Haven Vibrator Company.

15. **Bloapco Rotary Feeder Valves. Bulletin No. 521.** Dimensions, capacities, and applications of a line of rotary valves for the positive feeding or volumetric batching of dry materials are covered in this four-page bulletin. The text explains the features of the line which includes vented and unvented valves. Construction data is given in text form. Blower Application Company.

16. **Transmission Topics. Volume 1, Number 3.** This is the 50th Anniversary Issue of the company's house organ. The 28-page issue is in booklet form and printed on fine quality paper. Virtually the entire issue is devoted to a pictorial history of power transmission during the last fifty years. The great development in trucks, road machinery, construction equipment, and materials handling devices are shown by old and new photos. Drawings recall the good old days of horse drawn vehicles, dump wagons, team-pulled scrapers, pick-and-shovel excavating and similar operations now nearly obsolete. Modern machines are shown and the transmissions that power them are illustrated and described. The company's history during these fifty years is given. Fuller Manufacturing Company.

17. **Denver Equipment in Every Field. Bulletin G3-B39.** This 12-page booklet punched for loose-leaf filing lists the many products made by the company. Illustrations show the major types and include such products as ball mills, agitators, classifiers, jaw crushers, dryers, roll crushers, conveyors, filters, flotation machines, feeders, hoists, pumps, screens, and thickeners. A world map locates factories, branches, and dealers. Several pages describe the activities of the company and list the services. Denver Equipment Company.

18. **Nagle Pumps Selector. Bulletin 952.** This bulletin covers nine pumps especially adapted to abusive applications. These pumps are designed for abrasive and corrosive liquids and slurries. Vertical types for dry and wet pits, and horizontal ones are covered. Automatic priming, standard and overhead bearings, and many other features are discussed. Each model is described and illustrated and applications are suggested. Nagle Pumps.

19. **Nordberg 4FS Diesel Engines, Pumps, and Generators. Bulletins 208-219.** This is a series of twelve single page bulletins. Each page contains complete specifications, equipment data, and descriptions of standard and optional equipment for one machine. Photos of right and left side views and an outline drawing showing dimensions are included on each. The engines covered are models 4FS1, 4FS2, and 4FS3 which are respectively 1, 2 and 3 cylinder models. Each of these is available as straight engine with stub shaft, engine with clutch power take-off, engine and generator unit and engine and pump unit. Bulletins 208, 209 and 210 cover generators of 1, 2 and 3 cylinder diesel engines, numbers 211, 212, and 213 cover the same engines with stub shaft, bulletins 214, 215 and 216 cover the clutch equipped models, and bulletins 217, 218 and 219 are the pump units. Nordberg Manufacturing Company.

20. **Time-Cycle Controllers. Bulletin No. C305.** This is a 12-page bulletin that describes a line of controllers for time-cycles. They are designed for controlling industrial processes where time is factor. The bulletin illustrates the models available and decribes the principle of operation in detail. The Bristol Company.

21. **Fireproofing with Perlite. Fourth Edition.** This pamphlet summarizes the basic details of 32 approved fire retardant constructions using lightweight plaster or concrete made with perlite. Construction details are given for lightweight protection for columns, floors, ceilings, and partitions. Diagrams show the required thickness of perlite plaster or concrete, furring details and other basic elements to obtain the listed fire rating. Photos show some prominent buildings that are constructed with perlite plaster and concrete. Perlite Institute.

22. **A Smaller, Lighter, Heavy-Duty Engine. Form 10027.** The 12 pages of this bulletin cover the TS 4-cycle diesel which is in the 200-400 hp. class. Sectional drawings, performance charts, dimension tables, and installation photos are used to present a complete story on this engine. Specifications, weights, and auxiliary equipment are included and mention is made of other diesel engines made by the company in higher horsepowers. Ingersoll-Rand.

23. **Quick-Way, The World's Leading Truck Shovel. Bulletin 52-140.** The 24 pages of this booklet are filled with field photographs of the shovel in use showing many attachments, and with drawings and sketches that show these attachments and the various components of the machine. Specifications on four models are given and general facts about the whole line are summarized. Information is given on the use of the machine as a crane, pile driver, clamshell, dragline, brush and log grapple, drop ball crane, trench hoe, backfiller, pipe setter, shovel, front scoop shovel, and front dump shovel. The four models covered have capacities from 3-10 tons lift as cranes and ¼-⅝ cu. yds. as diggers. Quick-Way Truck Shovel Company.

24. **Protect the Weather Side of Your Building with Dehydratine No. 22.** The four pages of this folder use photographs to show the surfaces that should and should not be treated and the results of the treatment. The six features of the product are explained as well as the general composition of the material. Specifications are given. A. C. Horn Company.

25. **Deister Scalping Screens. Bulletin No. 54.** The four pages of this bulletin illustrate and describe a line of heavy-duty vibrating scalping screens. The principle of vibration is explained and diagrammed. Other features of the screens are covered and additional products of the company mentioned. Deister Machine Company.

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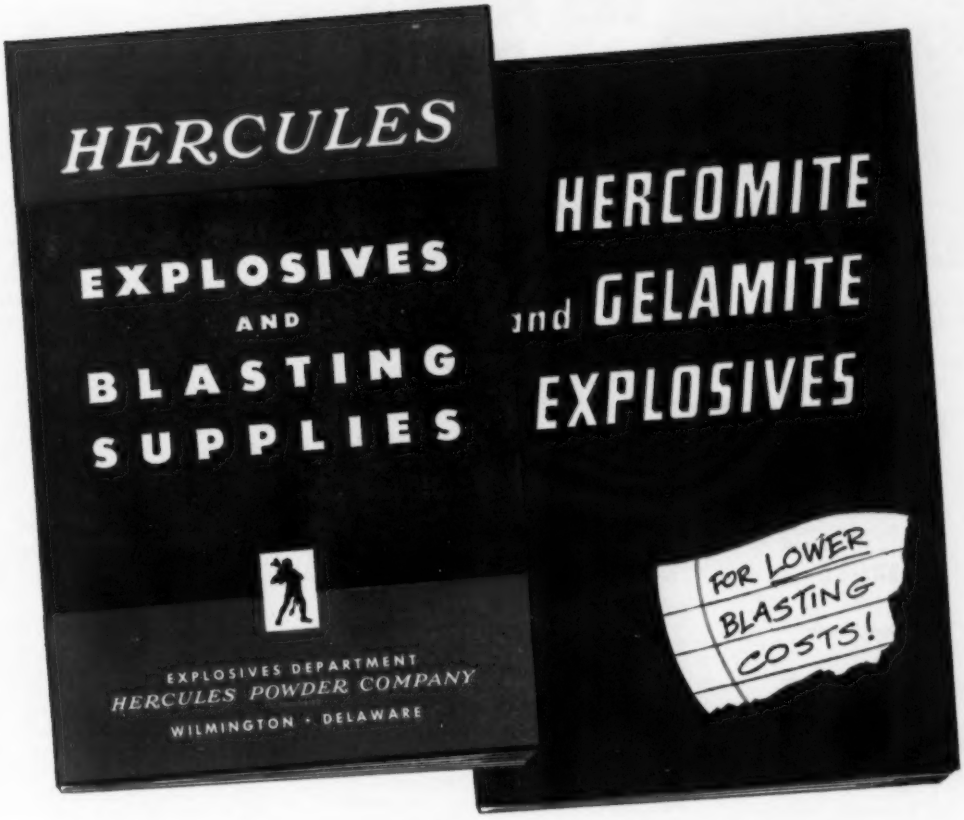


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endanger him by starting a unit on which work is being done.

The procedure for operating either half of the plant is the same as for the entire plant, except that the operating line will by-pass units which are not to be used.

An emergency stop button for all units is provided on the lower left corner of the benchboard, as well as at strategic points throughout the plant.

### BLENDING CONTROL

Blending control is effected on the panel board (Fig. 5) and is independent of plant control.

Controls for the 22 belt conveyor feeders are arranged in two sets of seven each covering the entire range of sizes, one set of five covering the middle range, and one set of three on the finer sizes, all properly assembled as groups on the vertical control panel.

Each feeder can be controlled from zero to 100 t.p.h. by speed change through rheostat control and without having to change the depth of stream on the feeder. A paddle switch on the feeder automatically checks the depth of the stream, so that if a bin should run dry, the switch will drop and shut off any given feeder, together with any of its allied feeders, in an entire group. This prevents the delivery of an improper mix to loading bins.

To set up any given blend, the operator sets the rheostat control for each feeder to the desired tonnage. After setting a group, he then starts the shuttle conveyors and the gathering conveyors and then pushes the master switch for the group, thus starting the group simultaneously, resulting in the same percentages from start to finish of the blending operation.

Indicating lights are provided for each of the seven balancing bins at the high, intermediate, and low positions, thus giving the operator in the Central Control Room an indication of balancing bin condition. Overflow signals also appear on the vertical control panel.

### LOADING CONTROL

For loading cars or trucks there are 14 bins. Each bin is provided with a set of signals indicating low level (stop loading), intermediate level (two carloads or more), and top level (warning about five minutes before full). Indicating lights are provided at four locations—on the outside of the building are railroad target signals indicating bin condition to the dispatcher in the railroad car yard, so that he knows where to switch cars. Similar signals

*(Continued on page 160)*

# Marblehead Lime Co. Produces High-Quality Pressure-Hydrated Lime for Chicagoland Market

another ON THE SPOT report

ONE of the newest building materials serving the Chicago area construction market is a high-quality pressure-hydrated dolomitic lime sold under the trade name Crown Miracle Lime. It is produced by Marblehead Lime Company, a subsidiary of Material Service Corporation, at its plant in Thornton, Ill., located 25 miles due south of downtown Chicago. Since March, 1951, when Crown Miracle Lime was first introduced into metropolitan Chicago, the demand has grown steadily until now it is one of the leading mason and plaster finish limes used in the Chicago area.

**By KENNETH A. GUTSCHICK**

This hydrated dolomitic lime is manufactured under the Corson patented process of continuous, high-pressure autoclaving, which was developed about ten years ago by G. and W. H. Corson, Inc., Plymouth Meeting, Pa., and made available to lime producers in 1948.[1] The Thornton plant is one of seven lime plants using the Corson process, including six in the United States and one in Argentina.

Although dolomitic lime was formerly produced at local quarry sites in the Chicago area ever since quarrying began there in the late 1800's, the Marblehead plant at Thornton represents the only one presently utilizing the local dolomite deposit for lime production.[2] Furthermore, it is the first Chicago area lime plant using a continuous autoclaving process for hydration, thereby producing a completely hydrated dolomitic lime product. This is one of the main selling points for the lime, since it gives the product a dimensional stability which earlier Chicago dolomitic hydrated limes lacked.

The Thornton lime plant consists of a kiln building housing two small rotary kilns and a hydrate building, both of which are constructed of steel framework covered with corrugated steel sheeting. Connecting these two units is an overtrack 500-ton quicklime storage bin.

The recently constructed hydrate building was designed by John F. Meissner Engineers Inc. This building houses a Corson mixer, a hydrator, and a collector, as well as other vital units needed in the processing of a hydrated, bagged lime. The entire plant, containing up-to-date equipment, is efficiently laid out, enabling a relatively small working force to maintain maximum production. Besides producing hydrated lime, the Thornton plant also produces pebble and ground quicklime for the Midwestern market.

[1] *The Corson Explosion Method of Continuous Pressure Lime Hydration*, PIT AND QUARRY, December, 1949, pp. 85-86.

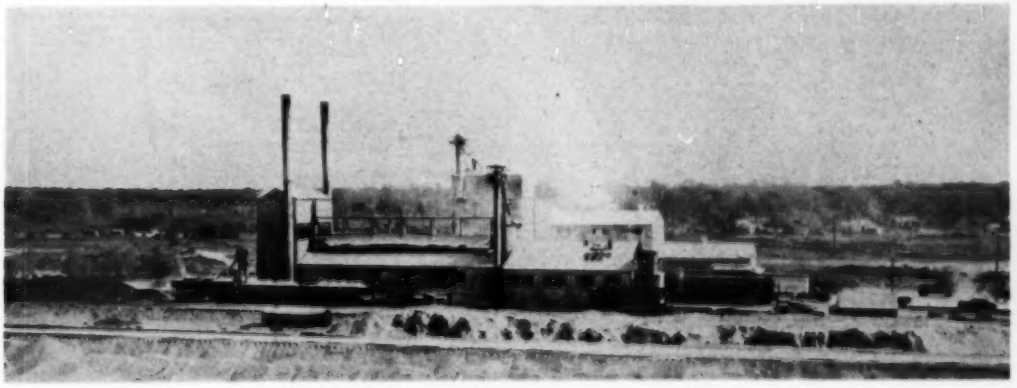
[2] Marblehead Lime Co. operates the only other lime plant in the Chicago area. However, this plant, which is located in South Chicago, produces high-calcium quicklime and hydrated lime, using high-calcium limestone brought in by lake freighters from northern Michigan quarries.

• Jim Jackson, superintendent of the Marblehead plant at Thornton (center), with John Lanham (left) and Melvin Carpenter (right), plant foremen.

## RAW LIME PRODUCTION

**Raw Materials** In lime production the company uses an exceptionally high-purity dolomite which is obtained from the Material Service Thornton quarry, located immediately north of the lime plant. This quarrying operation, incidentally, is believed to be one of the largest commercial operations in the United States.

The dolomite is quarried from the Racine Guelph (Upper Niagaran) formation, which is the same as that outcropping along the western shore of Lake Michigan, at Niagara Falls, and at the famous northwestern Ohio finishing lime district. The Thornton deposit is a classic example of a large reef structure, typical of the Niagaran formation, whose reef-core and reef-flank beds contain dolomite possessing an average calcium carbonate-magnesium carbonate content of 99 percent. The dolomite, occurring in massive, poorly defined



• A general view of the Marblehead Lime Company's plant at Thornton, Ill. The kiln building is in the foreground, and the hydrate building in the background.

• This pulverizer reduces the coal to 85 percent passing 200-mesh before it is blown into the kiln.

beds, is uniformly gray, medium-grained, porous, and locally very fossiliferous. Chert and clay zones, typical of much of the Chicago area Niagaran formation, are entirely lacking from the portion of the Thornton quarry currently being quarried. A characteristic chemical analysis of the dolomite[1] at Thornton is as follows:

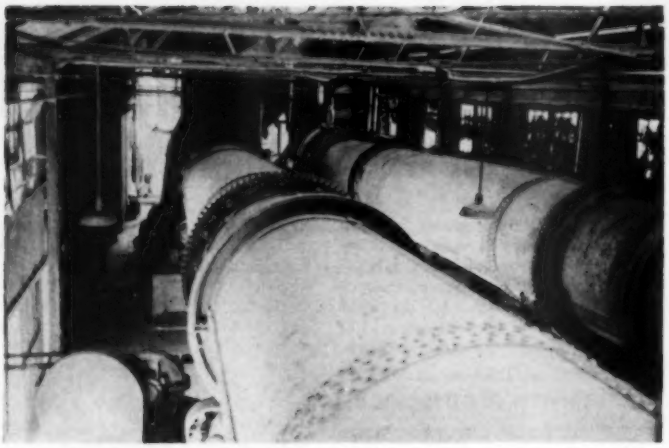
| | | | |
|---|---|---|---|
| $CaCO_3$ | — 54.57 | MgO | — 21.54 |
| $MgCO_3$ | — 44.30 | CaO | — 30.57 |
| $SiO_2$ | — 0.06 | $Na_2O$ | — 0.11 |
| $Al_2O_3$ | — 0.25 | $K_2O$ | — 0.01 |
| $Fe_2O_3$ | — 0.02 | $CO_2$ | — 47.12 |
| FeO | — 0.07 | | |

The stone used in burning is 1¼-in. size; it is transferred by rail from the Thornton crushing plant in 50-ton hopper cars over a ¾-mile haul. Due to the proximity of the stone source, crushed stone is not stock-piled at the lime plant.

Bituminous coal, used exclusively in the burning operation, is also a Material Service product, brought in hopper cars by rail from its own Freeman Coal Mining Company mines in southern Illinois. The grain size used at Thornton is –7/16-in. to 0. Unlike crushed stone, large stock-

[1]Data obtained from Illinois State Geological Survey.

• Kiln air used to preheat the pulverized coal first passes through a dust collector.



• Two rotary kilns calcine the dolomite.

piles of coal are maintained for emergency purposes.

**Raw Material Handling** Crushed stone is dumped from the hopper car into a large track hopper. Then by means of a Conveyor System's 5-hp. reciprocating feeder and an 18-in. inclined belt conveyor, a Jeffreys super-capacity bucket elevator, and a swinging 18-in. belt conveyor, it is transferred to either of two 250-ton surge bins inside the kiln building.

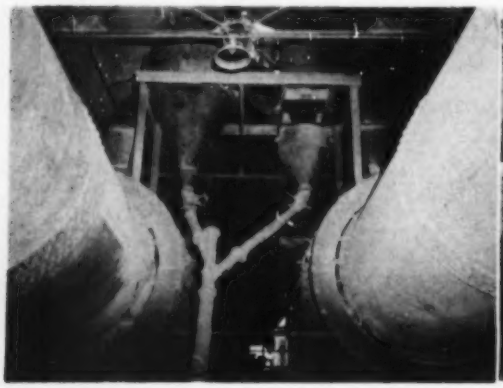
Two identical self-contained kiln units are set up in the kiln building, which is roughly 55 by 180-ft. in size. For each rotary kiln there is a stone bin and a stone feed, a coal bin and a coal feed, a coal pulverizer, two fans, a contact lime cooler, a cyclone collector, and a large 100-ft. steel smokestack.

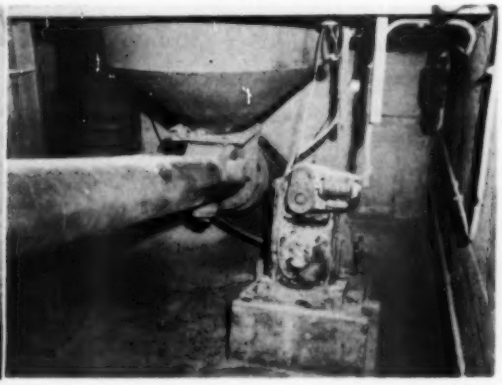
From the surge bin, the dolomite is fed into the kiln *via* a Conveyor Systems inclined pan conveyor; the feed is synchronized with the rotation of the kiln by means of a large chain-and-sprocket arrangement which is driven off the kiln drive pinion shaft.

Coal, which is handled close to the firing end of the kiln, is unloaded from hopper cars into a narrow track hopper. It then passes into an inclined drag-chain conveyor, a bucket elevator, and into either of two 50-ton steel storage tanks. From each tank the coal is fed by gravity into a Whiting No. 15 pulverizer, which is driven by a 25-hp. electric motor. It is then ground to 85 percent passing 200-mesh before being blown into the kiln.

**Burning** The rotary kilns are identical, Bonnot steel-riveted units, which are mounted on two sets of steel trunions on concrete foundations; each has a pitch of ⅜-in. per foot. A single 6-in. course of Harbison-Walker or General Refractories 70-percent alumina fire brick is used for lining the entire kiln. Each kiln is driven by means of a 25-hp. G. E. motor and a Jones No. 240 double herringbone reducer. Kiln rotation

• Discharge of pebble lime from a specially-designed contact cooler is effected through a variable-speed air-lock screw conveyor.



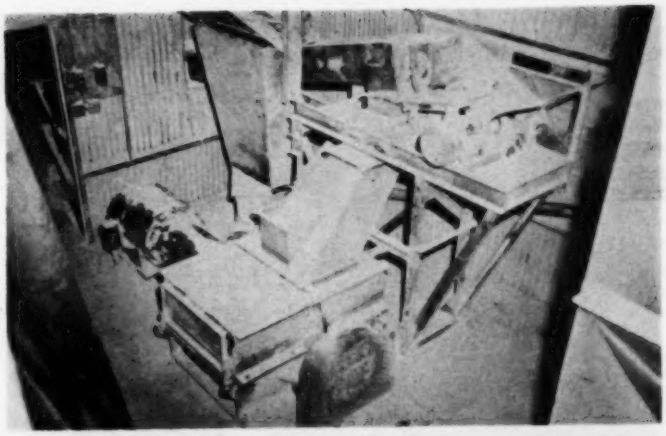


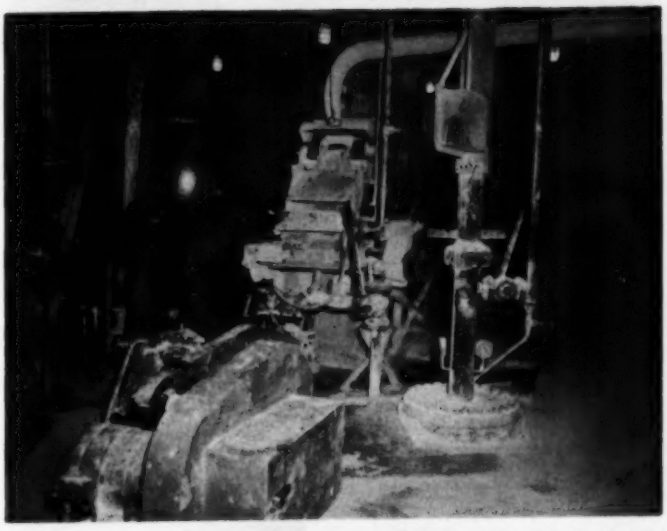
• Pebble lime is pulverized to 1/8-in. to 0 by a slugger-type hammer mill.

is highly variable, ranging from 30 to 50 r.p.h.; it varies according to the type of stone (size, moisture content, etc.), output desired, and other important factors. No auxiliary kiln motor is used.

The kiln utilizes a natural draft firing system, in which powdered coal from the pulverizer, maintained at a temperature of approximately 180 deg. F., is blown through a 7-in. burner pipe into the hood. Two No. 19 Clarage fans and a small booster fan on the pulverizer are used in the firing and cooling process; one Clarage unit operates in conjunction with the contact cooler located under the hood and the other with the pulverizer. The air used to dry and preheat the coal to the desired 180-deg. temperature is drawn by the fan partly from the hood and partly from the outside; the heated portion first passes through a cyclone collector before passing into the fan, in order to remove any quicklime dust. By means of this efficient firing system, the temperature of the kiln's burning zone is maintained at about 2,500 deg. F.

In order to produce a uniformly burned quicklime, the kiln operator performs a slaking test every 30 minutes, in which the slaking time is determined by mixing 200 gm. of carefully sampled and pulverized pebble lime with 100 cc. of water heated to 100 deg. F. The kiln operator tries to maintain a slaking test

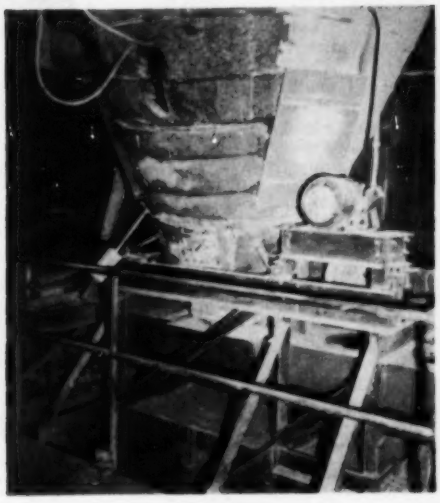


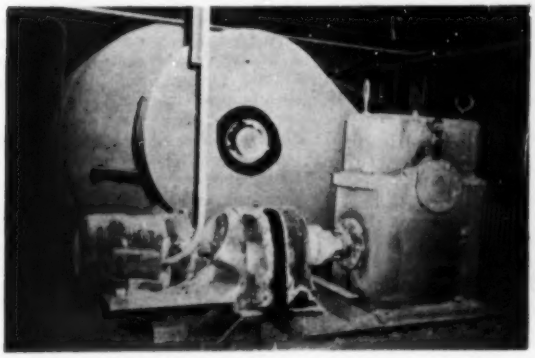


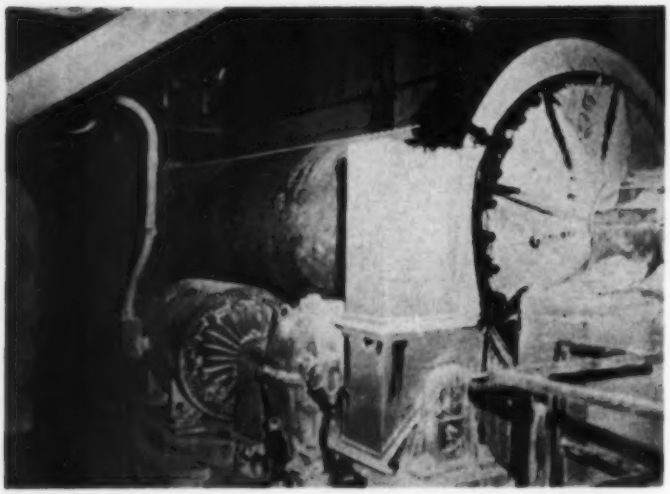
• Center: Ground lime and water are automatically fed into the Corson mixer; the slurry is then pumped to the hydrator. In the foreground is the pump; in the background are the automatic weigher and attached mixer.

• Right: Lime hydrate passes from the hydrator into the insulated Corson collector, which is constantly vibrating during the process.

• Below: Continuous high-pressure hydration is accomplished in this Corson hydrator. The electric motor and the two reducers in the foreground drive the agitator.







• A 5- by 22-ft. ball mill agglomerates the hydrate, thereby increasing its plasticity.

of approximately 1½ minutes. If the test is considerably higher than that figure, meaning that the lime is overburned, the kiln operator makes an adjustment by increasing the speed of kiln rotation so that the dolomite passes through the kiln more quickly; or by reducing the amount of coal fed into the pulverizer; or by reducing the temperature of coal being blown into the kiln. This latter operation can be done simply by cutting down on the amount of heated air drawn from the hood. If the slaking time is considerably less than the desired 1½-minute value, one or more of the reverse operations are undertaken. In either case, there is generally a lag of an hour or so before the burned lime approaches the desired test.

**Cooling** Following calcination, the pebble lime falls through a grizzly directly into a counterflow contact cooler, which is one of the special features of the lime plant. The cooler, designed by Marblehead engineers, reduces the lime temperature to within 50 degrees of the fan air temperature by air blown through the cooler. The cooler features a nearly 100 percent recuperation of air for combustion purposes; radiation losses in the cooler are minimized by compact design and insulation.

Lime discharge from the cooler is effected by a 12-in. variable-speed inclined and enclosed screw conveyor, driven by a 5 hp. Reeves Varispeed drive; the screw also acts as an air lock. This variable-speed screw is regulated from the panel by the kiln operator. By varying the rate of discharge and also the amount of air blown into the cooler, the kiln operator can vary the lime temperature considerably.

Lime is fed from the variable screw to a 12-in. enclosed constant-speed cross screw conveyor; then by means of a Link Belt bucket elevator, it is transferred to either of two steel bins, each having a capacity of 250 tons.

One important feature of the variable screw is that it can be reversed if it becomes clogged. Another important feature at Thornton is that interlocking switches are used in operation of the lime conveyor units mentioned above; thus if the bucket elevator stops, the cooler screw and cross screw conveyors automatically stop. An interlocking switch also operates the pulverizer and coal feed.

• A mechanical air separator, from which the fines pass to the bagger and the tailings to be recirculated.

This system of interlocking switches is also used extensively in the hydrate building.

## HYDRATED LIME PRODUCTION

The hydrate building is slightly smaller than the kiln building, being roughly 40 by 135 ft. in size and three stories high. It includes a bagging room with floor space of approximately 2,000 sq. ft. used for storage purposes.

**Pulverizing and Mixing** Pebble lime is transferred from the twin storage tanks to a hammer mill by means of two screw conveyors, including a 10-in. cross screw conveyor and a 10-in. inclined screw conveyor. The cross conveyor, driven by a 3-hp. Falk reducer, features a left-hand screw feeding from one tank and a right-hand screw feeding from the other tank, enabling both tanks to be unloaded simultaneously. The screw conveyors used here and in the remainder of the hydrate building are enclosed units manufactured by Screw Conveyor Corporation.

The quicklime is pulverized to ⅛ in. to 0 by a Williams No. 230 Slugger-type hammer mill, which is driven by a 50-hp. motor; it operates at a maximum rate of 15 t.p.h. Ground lime from the mill is then gravity-fed into a 15-ton surge bin from which a 9-in. screw conveyor, a Link Belt bucket elevator, and a 12-in. screw conveyor transfers it to a Schaffer 20-in. light-duty Poidometer. The bucket elevator mentioned here is one of four similar elevators used in the hydrate building.

The Poidometer in turn automatically feeds lime at a constant rate to a Corson No. 9 slurry mixer; excess lime fed to the Poidometer is returned to the ground lime bin to be recircuited. Water, obtained from a deep well located at the lime plant and stored in a 300-gal. tank near the Poidometer, is simultaneously pumped at a constant rate to the Corson mixer through a Fischer and Porter Flowrater. The rate of flow of water and lime is carefully maintained during the operation, so that a uniformly hydrated lime is produced. The resulting lime slurry is then pumped into the Corson hydrator by a Corson 5 by 6 McGowan Slurry Duplex single-acting plunger pump, which is driven by a Reeves 5-hp Varispeed drive.

**Hydration** The next step, namely the continuous high-pressure autoclaving, is the most crucial part of the hydration process. It occurs in a specially constructed Corson hydrator which is an insulated horizontal steel cylinder equipped with an agitator. The hy-

• The screw conveying units leading to and from the 2½-ton bagging bin.

drator, covered by a 3-in. layer of insulating material, is maintained at approximately 300 deg. F. by heat generated during the process. The agitator, consisting of a series of paddles mounted on a central shaft, aids in the hydrating process. It is chain-driven by a Cleveland 800 AJ worm reducer, which in turn is driven by a 30-hp. Falk reducer.

By means of the high temperature and pressure, the Corson method yields a hydrated lime in which all the calcium oxide is hydrated and practically all of the magnesium oxide is hydrated. This latter accomplishment is a major feature of the process since the hydration of magnesium oxide is a difficult chemical undertaking. Although the process is continuous, it is estimated that the hydration of lime particles requires about 30 to 45 minutes.

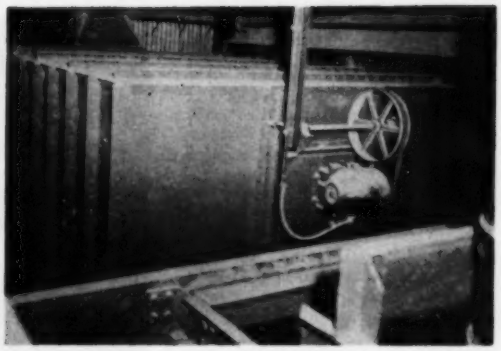
In actual operation the pressure and temperature is built up by pumping the lime slurry into the hydrator after closing a 4-in. discharge valve located at the top of the hydrator. After the proper pressure is reached, the valve is opened and the lime hydrate is then continuously produced and discharged into a collector. The hydrator possesses an important safety feature, namely a Black, Sivalls, & Bryson Company 6-in. safety head, which blows at 125 lb. pressure; it also has manually-operated upper and lower discharge valves, which can be opened to reduce unusually high pressures.

**Collecting** The Corson collector, a specially constructed tangential cyclone unit, is another critical part of the hydrating process. Like the Corson hydrator, it is insulated and maintained at a temperature of approximately 300 deg. F. by attached strip heaters; however, unlike the hydrator, it is operated at atmospheric pressure. Hydrated lime from the hydrator discharges at an estimated rate of 10,000 f.p.s. into the collector, where rapid spray drying, brought on by reduced pressure, separates water vapor from the hydrated lime. Steam escapes to the atmosphere through a 35-ft. steel stack, while the hydrate falls to the bottom of the collector. During the process the collector is constantly vibrated by two Ajax Shaler Shakers, which are each driven by a 3-hp. motor. Similar vibrators are used extensively in the hydrate buildings; they are installed on three storage tanks, a cone air separator, a dust arrestor, and the bagging machine.

**Grinding and Separating** During the remainder of the process, the hydrated lime passes through a ball mill, an air separator, and the bagging unit. An 18-in. screw conveyor, driven at 60 r.p.m. by a 15-hp. Falk drive and capable of handling 15 t.p.h., transfers the hydrate from the collector to a Link Belt bucket elevator, which in turn discharges the lime into 20-ton steel bin. The feed from the bin into the ball mill is effected through a Raymond 16-in. rotary valve, which is driven by a Syncrogear unit, and a 4-in. screw conveyor, operating at 150 r.p.m.

The ball mill, 5 by 22 ft. in size, performs an important function in the process by agglomerating the lime particles, thereby increasing the lime's plasticity. This agglomerating effect is produced by the pounding action of various-sized steel balls used in the mill. The drive for the mill is a 150-hp. electric motor and a Jones No. 180 S.H.S. herringbone reducer; the mill rotates at 24 r.p.m. A screen, having ½- by 2-in. openings, is placed at the discharge end of the mill.

Lime discharged from the ball mill is carried by another Link Belt bucket elevator to a Grayco 14-ft. mechanical cone air separator. The unit, driven by a 50-hp. motor, produces two fractions, including the fines, which are conveyed by a bucket elevator to the bagging machine, and the tailings, which are picked up by an 18-in. screw conveyor and then



• The bag-type dust collector shown here and the use of enclosed conveying units keep dust at the minimum in the hydrate building.

recircuited through the ball mill for further grinding.

**Bagging** The finished product is transferred to two bins, set 10 feet apart—one of 2½-ton capacity located directly over the packer and the other a 45-ton storage tank. A unique conveying system is employed at this stage, whereby one conveyor feeds the packer bin and another screw conveyor located adjacent to the first takes the overflow to the storage tank. In this way the packer bin is kept constantly full but never overloaded. When the need arises, lime from the storage tank is transferred to the packer bin by means of the bucket elevator issuing from the air separator.

The hydrated lime is then bagged in multiwall valve bags by a St. Regis 3-tube-type 205 EL packer, which is driven by a 10-hp. motor. The material is difficult to pack because of its unusual flow properties.

A final piece of equipment used in the hydrate building is a Parsons No. 88 oval bag dust arrestor, which collects dust from the bagging machine and the Poidometer; all other units are enclosed, so dust is kept at a minimum. Dust collected in the arrestor is recircuited through the system.

In order to assure production of hydrated lime which is uniform in quality, moisture and plasticity tests are made regularly. Samples for the moisture test are taken from the screw conveyor leading from the Corson collector; a minimum moisture content of 0.25 is allowed. The moisture test is also used in connection with production. If the moisture content is found to be too high, generally the ball mill and other units clog; if too low, the bagging operation is affected since the 50-lb. bags become overpacked. Any unusually high or low moisture reading is rem-

(*Continued on page* 160)

## New Dolese Plant

*(From page 154)*

are provided on the loader's platform at the bottom bin gate level to prevent him from using the wrong bin; at the shuttle operator's floor, so that he knows which bin requires attention; and on the vertical panel board in the Central Control Room for the central operator's information.

The top level in each bin is not only connected to an indicating light, but it is also connected to a pair of sirens, one on the shuttle floor and one in the Central Control Room. This gives an audible signal warning to alert the control room and shuttle operator. If the signal is not turned off in a reasonable time by the shuttle operator, the control room operator knows he should cut off all equipment creating flow to that bin. On the other hand, if the shuttle operator turns off the siren, he indicates by that action that he is properly on duty and operations will proceed as intended along normal lines.

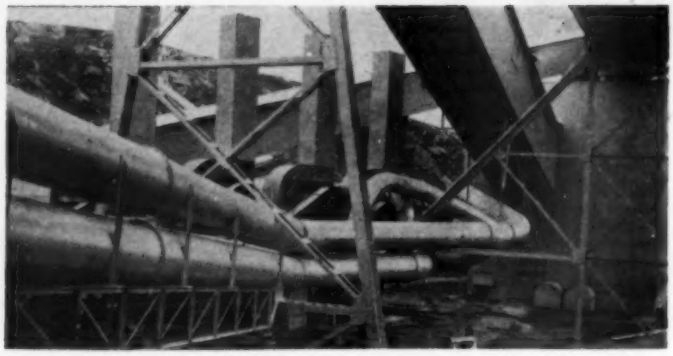
### DUST CONTROL

Dust is a hazard not only to personnel but also to equipment. Consequently the plant is completely equipped for dust collection. All vital points of transfer and other locations creating dust are connected by ducts to a system of four 40-in. diameter main collecting headers. These main collection headers are connected to four American Air Filter Co. Type N hydra-static (wet type) precipitators operating in parallel to divide the load. Recovery of fine limestone is at the rate of 20 to 25 tons in ten hours of operation.

### SAFETY

The utmost in safety is provided, both mechanically and electrically. All vital mechanical locations having exposed chains, V-belts, etc., are amply covered with wire-mesh guards.

**A typical dust baffle at the discharge point of the conveyor into the chute. The cable on the right side of the conveyor is the emergency stop cord.**



**The four 40-in. diameter main dust collecting headers leading to the four wet type precipitators which operate in parallel to divide the load.**

Electrically, the plant is equipped throughout with emergency stop buttons or pull cords at strategic points. This includes an emergency stop button at every motor location, as well as "test-run" buttons.

Limit switches on all bifurcated chutes assure correct interlocking protection on electrical circuits, thus automatically transferring the sequence in accordance with desired predetermined plant flow.

An additional electrical feature of this installation is the practical elimination of auxiliary relays. This simplifies the electrical maintenance problem of the interlocked circuits. Alarm circuits are provided with reset buttons to permit the silencing of the alarm by the operator; they are wired so that the alarm is then reset automatically to be immediately available for additional indications.

An intercom telephone system is provided for communication between all vital areas and within the screening and blending station; there is a public address system for all necessary warnings and instructions.

The general concept and design of this plant is indeed a reflection of the fulfillment of demands for accomplishment of perfection within the limits of sound economy as visualized by the high standards maintained throughout the entire Dolese Bros. Co. organization, and particularly the thinking and ideas of its foresighted and modern-minded president, Roger Dolese.

## Marblehead Lime Co.

*(From page 159)*

edied by simply varying the water flow into the Corson mixer. Whenever changes are made in the water feed, moisture tests are taken more frequently than usual.

Because of the high degree of mechanization at the Thornton lime plant, a relatively small labor force operates the entire plant. The plant superintendent is Jim Jackson, who has been at the Thornton plant about ten years, serving first as maintenance foreman before becoming superintendent. A very capable lime plant operator, Mr. Jackson was extremely helpful in supplying information for this article. Melvin Carpenter and John Lanham are plant foremen.

Crown Miracle lime, the principal lime product at Thornton, is used almost entirely in the building construction industry, both as a high-quality mason lime and as a plaster finish lime. Outstanding features of the hydrated lime are its high immediate plasticity, its dimensional stability, and its high water retentivity.

Minor uses of Crown Miracle lime include water treatment, sanitation, acid neutralization, whitewash, aglime and other uses. Pebble lime and ground quicklime are used primarily for industrial purposes.

The Thornton lime plant is one of five Marblehead plants, the others being located in South Chicago, Quincy, and Marblehead, Ill., and Hannibal, Mo. Rotary lime kilns are used at South Chicago, while the Quincy and Hannibal plants utilize shaft kilns. An underground mining operation at Marblehead, Ill., produces high-calcium limestone for the Quincy plant nearby. Another underground mine at Hannibal supplies the Hannibal lime plant with high-calcium limestone.

The executive officers of Marblehead Lime Co. include Col. Henry Crown, chairman of the board; Wallace E. Wing, president and general manager; M. R. Mathews, vice-president of sales; Irving Crown, secretary; and Lester Crown, vice-president and chief engineer. Marblehead's main office is in Chicago.

# Second Westinghouse Conference On Industrial Electrical Power Trends

THE Westinghouse Electric Corporation, which is in the midst of a $300,000,000 expansion program, held its Second Trends of Electric Power in Industry Conference on November 19 at its East Pittsburgh, Pa., plant. The conference, arranged by H. C. McDaniel, manager of technical publicity, was attended by

**By KENNETH A. GUTSCHICK**

approximately 30 editors from leading trade publications in the United States. The one-day affair was packed with the presentation of technical papers by Westinghouse engineers, panel sessions, plant tours, and a luncheon and dinner meeting.

The group was formally welcomed at the plant by a Westinghouse executive, followed by a talk entitled *Engineering Paces Our Expansion Program*, by A. C. Monteith, vice-president, engineering. Mr. Monteith told the editorial group that the installed electric power capacity of the United States, presently rated at 80,000,000 kw., has been growing in recent years at the rate of 6 percent annually. He pointed out that Westinghouse is keeping pace with the significant growth by means of a huge expansion program. Since the end of World War II, Westinghouse has expanded its productive capacity by 50 percent and expects to increase it by another 50 percent following the completion of its present expansion program.

Indicative of the part Westinghouse engineers are playing in this recent growth is the fact that since 1939 the number of basic research engineers has increased seven times and the number of design engineers has increased 4½ times. Presently Westinghouse has 117 research laboratories, and new ones are constantly being built.

Mr. Monteith also briefly discussed the various fields in which research and development is being directed. Of prime importance is the work on huge generating plants, operating at high speeds. Presently two 250,000-kw. 3,600 r.p.m. generators are in the designing stage; they are to be built at the East Pittsburgh plant's famous Aisle "D" and "D" Annex. The latter building, still under construction, is designated the "Aisle of Progress." Mr. Monteith envisioned the building of even larger generators, some as large as 500,000 kw. Other fields in which Westinghouse is doing research include gas turbines; high voltage units, including those up to 350,000-volt capacity; huge circuit breakers, some rated at 25,000,000 kv.-a.; new control devices, like the magnetic amplifier, which enable machinery to run at higher speeds; larger and more compact transformers; electronics; and secret government projects on jet engines, radar, and atomic energy.

In a talk on *Regulating Systems—The Key to Higher Production*, W. R. Harris, manager, metal works section of the Industrial Engineering Department, East Pittsburgh plant, began by stating that automatic regulating systems are a well established and integral part of electric drives for every major process industry. This has been brought about by the higher and higher speeds and greater horsepower at which machinery is being operated in order to attain higher production.

Mr. Harris pointed out that regulating systems, including rotating, magnetic amplifier, electronic, or electro-mechanical types, are used to regulate speed, current, voltage, torque, or any combination. Each type has a means of detecting an error in the mechanical operation, comparing the error to a standard, amplifying the difference of the two, and applying a correction in the proper direction.

Mr. Harris then discussed the modern use of regulating systems in tandem cold reduction steel mill drives, supercalendar paper mill drives, electric power shovel drives, and continuous processing tinplating mill drives.

In discussing electric power shovels, Mr. Harris pointed out that the recent large increase of strip mining coal operations over underground operations has resulted in the greater use of large electric power shovels, some as large as 50 cu. yd. in size. This has been followed by the greater use of electrical regulator systems.

Regulators for electric shovels are used to reduce peak torque or shock, to reduce the amount of space required for control equipment, to effect speedier operation, and to reduce maintenance costs. Required for the swing, crowd, and hoist motions of the shovel, the regulating system that Mr. Harris described, consists of an adjustable voltage system controlled by a rotating regulator. According to Mr. Harris, this system, called a Rototrol, replaces older forms of drives using individual field generators for each motion. For the swing motion the system reduces shock by reducing peak current; it also gives faster, smoother reversals. The Rototrol is used for a somewhat different purpose in the hoist and crowd motions, brought on by the frequent and sudden stalling when the dipper stick hits a rock ledge. Then the system immediately forces the generator voltage to collapse, thereby preventing excessive current.

Another technical paper was given by R. A. Ramey, Magnetic Development Section, Materials Division, on the subject *Influence of Materials on Magnetic Amplifiers*. This talk, like the previous one, was illustrated with various photographs and diagrams. In discussing the history of development of magnetic amplifiers (magamps), Mr. Ramey pointed out that, although the magnetic circuit was invented shortly after 1900, it did not gain importance in this country until the last ten years. Mr. Ramey then discussed the role Westinghouse has played in the recent large-scale development of the magamp. He traced, step by step, the company's research in this field, pointing out developments in methods of manufacturing, uses, and materials used.

According to Mr. Ramey, the magamp consists basically of a dry disk selenium-type rectifier and wires toroidly wound on a Hypernik V alloy core (50 percent iron—50 percent nickel). The unit is practically maintenance-free, having an estimated life of 80 years; it is also shockproof and able to withstand wide

A part of the editorial group that toured the warehousing facilities of Westinghouse's East Pittsburgh plant. At extreme left are H. C. McDaniel, manager, technical publicity, Public Relations Dept., and K. A. Gutschick, Field Editor, Pit and Quarry Publication.

temperature variations. The enclosed rectifier has a 1,000 to 1 ratio between back leakage and rated forward current, which is an important engineering accomplishment.

According to Mr. Ramey, magamps are now being used in autopilots, motor controls, arc welding controls, ignition firing controls, metering equipment, and regulations. It is expected that there will be a large increase in the use of magamps in the industrial-motor control, such as steel mill regulation systems. Mr. Ramey said the magamp offers a high degree of reliability under a minimum maintenance, characteristics which may give the magamp an advantage over rotating and electronic amplifiers.

After the talks various panel sessions were held. The editors met with Westinghouse engineers specializing in their own field and discussed mutual problems. This was an important feature of the conference, since it enabled the editors to obtain specific information about the use of electricity in their particular fields.

During the remainder of the afternoon, the editorial group was conducted on tours through the warehousing and shipping department of the East Pittsburgh plant and also through the magnetic amplifier plant in Pittsburgh. The shipping department featured the elaborate use of belt and basket conveyors and spiral chutes. Laboratory research and manufacturing methods were observed at the magamp plant.

The luncheon and dinner meetings featured talks by Westinghouse officials. W. W. Sproul, vice-president, spoke to the luncheon group on *The Westinghouse Plan for the Future;* C. C. Frame, director of labor relations, spoke on the subject *Two Steps Toward Labor Peace.*

## Issue Handbook on Welding Ferrous, Non-Ferrous Metals

*Weldability of Metals* is a 141-page book which explains the factors determining weldability; gives the causes and cures for hard-to-weld metals; and outlines welding procedures for steels, nickel, iron, alloys, copper, aluminum, and hardfacing. It was reprinted from the ninth edition of the *Procedure Handbook of Arc Welding Design and Practice.*

American Welding Society specifications for electrodes used to weld are also given. A thorough analysis of the principles and practices of hardsurfacing is presented. Complete tabular data, drawings, and pictures supplement the text.

Published by the Lincoln Electric Company, Cleveland 17, Ohio. Price, 50 cents in the United States; 75 cents elsewhere.

# Link-Belt Opens 17th Plant On 43-Acre Tract at Colmar

● Link-Belt Company's new "straight-line" plant at Colmar, Pa.

Five football games could be played simultaneously in the vast spaces of a huge new factory building recently erected at Colmar, Pa., on the Reading R.R. about 25 miles north of Philadelphia. It is the 17th plant of the Link-Belt Company, well-known manufacturers of a wide variety of equipment and machinery used throughout the pit-and-quarry industries. Completely modern in its conception and execution, the Colmar plant will manufacture custom-designed conveying and processing equipment on a "straight-line" production basis.

Formally opened on December 1, 1952, with the dedication of the "Link-Belt" railroad station, the plant played host to engineers, industrialists, civic leaders, business paper editors, and others. Stockholders, employees, and the residents of Bucks and Montgomery counties were guests at a special party on Saturday December 6.

Situated on a roomy 43-acre farmland tract that provides for further expansion, the Colmar plant has 300,000 sq. ft. of floor area, wherein metal working can proceed from raw material to finished product on a "straight flow" basis.

The manufacturing area comprises five bays, each 60 feet wide, running almost the entire 800-ft. length of the building, crossed at either end by receiving and shipping bays, each of which has a railroad spur inside. Six huge overhead cranes transport raw materials the length of these bays, with the craneways overlapping into the end areas to permit transfer from bay to bay, or to railroad cars or trucks.

● L. J. Carson, general manager of the new Link-Belt facilities, the company's 17th plant, at Colmar, Pa.

The flexibility of the straight-line production pattern is enhanced by the vast amounts of open space between the machinery for storing work in progress. The production bays have 32-ft. headroom from truss to floor. Brick, precast stone sills, and corrugated asbestos siding enclose the structure, which is equipped with a new type of lighting. Fresh air is brought into the plant, filtered, and distributed evenly throughout at the rate of 1,000,000 cu. ft. every 5 minutes. Perimeter heating is another feature.

Outstanding medical facilities, excellent cafeteria service, fine toilets, and extensive paved parking areas are also furnished. Window panels of clear glass bring the building at eye level, so that the enclosed worker can maintain that all-important contact with the outside world!

Engineering is, of course, the prime consideration of the Link-Belt organization. For that reason, the entire second floor of the office is devoted to this department, with every thought given to the convenience and comfort of the workers. Other offices, the cafeteria, and the dispensary are located on the ground floor.

## New Mexico Perlite Deposit Opened by Texas Concern

The El Paso Perlite Company, recently organized by J. W. Denney (president), Charles Von Maluski, J. R. Kreichbaum, C. W. Whatley, and Maude C. Denney, has been developing a large perlite deposit in Grant County, N. M. Roy Walker is mine superintendent. Shipments of crushed ore are expected to be made in the immediate future, and construction of a plant is contemplated.

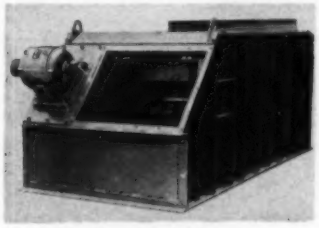
Reserves in the Grant County deposits are estimated at approximately 2,000,000 tons of accessible, high-quality perlite.

*A Review of*

# New Equipment Developed in 1952

**NORDBERG MANUFACTURING COMPANY,** Milwaukee 1, Wis., introduced the "Symons" Vibrating Rod Grizzly which is designed to scalp in excess of 400 t.p.h.

This grizzly, the "K-RG" is for heavy-duty service in dry, sticky, wet or gummy rock. It is available for separation from ½ to over 4 in. and is particularly useful

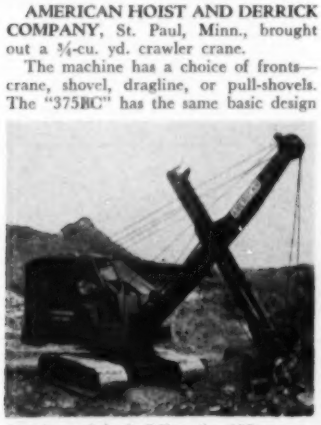


following primary crushers.

The screening surface is 50 in. wide by 8 ft. long and has spring steel rods arranged in three bays. The rods are held by a clamping device and are replaced through inspection ports. Vibration is supplied by an unbalanced weight mounted at the discharge end. The grizzly will handle up to 12-in. material.

**AMERICAN HOIST AND DERRICK COMPANY,** St. Paul, Minn., brought out a ¾-cu. yd. crawler crane.

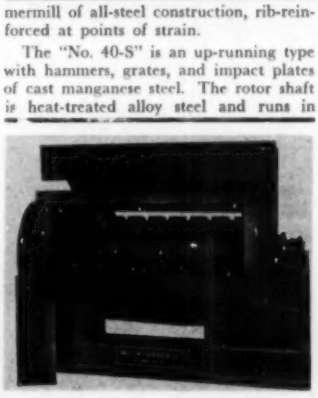
The machine has a choice of fronts—crane, shovel, dragline, or pull-shovels. The "375BC" has the same basic design



that is used in building the 100-ton capacity revolving cranes. Special abrasion resisting steels and lightweight alloys have been used to give lightweight and durability. The high-speed boom hoist has controlled lowering.

**AMERICAN PULVERIZER COMPANY,** 1249 Macklind Avenue, St. Louis 10, Mo., marketed a heavy-duty hammermill of all-steel construction, rib-reinforced at points of strain.

The "No. 40-S" is an up-running type with hammers, grates, and impact plates of cast manganese steel. The rotor shaft is heat-treated alloy steel and runs in

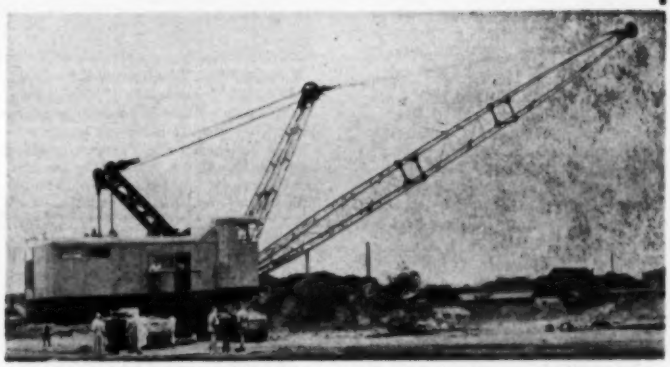


anti-friction bearings in dust-tight pillow blocks. Liners and other wearing parts are replaceable. The machine has a capacity of 30 t.p.h. of limestone to minus 10-mesh from 1½-in. feed.

**THERMOID RUBBER COMPANY,** Trenton, N. J., simplified its hose line from 18 to 5 basic types. They are made in different colors to assist in identification. These types are:

Red covered "Versaflex" for pressure to 800 p.s.i., handling air, water, and petroleum products, as well as butane, propane, and sprays; "Versicon," brown-covered, for nearly all industrial applications up to 300 p.s.i.; the "Aquair" type for air, water, oxygen, and acetylene, with pressures up to 200 p.s.i., cover, green; "Utility," a general-purpose hose for water and air, with working pressure to 125 p.s.i., black and "Powerflex" a steel braided hose for steam service up to 200 p.s.i.

**BRUNNER AND LAY,** 9300 King Street, Franklin Park, Ill., announced a complete line of tungsten carbide bits for use with drill steels on drills, jackhammers, stopers and drifters. The line of bits is available in all standard sizes from 1¼ to 4 in. and in the four-point cross style and the two-point chisel style. Features include full body support of the carbide insert, balanced air hole positioning, accurately formed shoulder for full support by the drill steel and internal threading of the bit to prevent bottoming of the steel in the bit.



**HARNISCHFEGER CORPORATION,** Milwaukee, Wis., produced the "Model 1855" which is said to be the largest dragline ever mounted on a single set of crawlers.

This model has the capacity to handle an 8-cu. yd. bucket with a 120 ft. boom, or a 7-cu. yd. bucket at 150 ft. Power is supplied by a Cooper-Bessemer FV8 diesel engine that develops 590 hp. at 900 r.p.m. and transmits the power through four Magnetorque drives. These drives use magnetic force to operate the mechanism without any mechanical linkage so that shocks are eliminated.

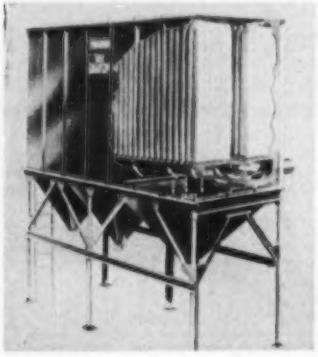
The crawlers are 60 in. wide and 29 ft. long. The machine weighs 600,000 lb. and is 32 ft. high. The digging line has a speed of 199 f.p.m. and a 93,000 lb. pull while the hoist line has a speed of 246 f.p.m. and a 75,600 lb. pull.

**GENERAL ELECTRIC COMPANY,** Schenectady 5, N. Y., brought out a line of fractional horsepower motors. The "Form G" line of motors features a 51 percent reduction in weight per horsepower, and smaller size. New bearings, better ventilation, improved insulation, and improvements in windings, end shields, terminal boards and leads are other features.

This line is available as open drip-proof and totally enclosed fan-cooled models in polyphase, capacitor, split phase and permanent split capacitor types. They are suggested for pumps, fans, blowers, and compressors, and are made in all standard speeds, horsepowers, voltages, and frequencies.

**PANGBORN CORPORATION,** Hagerstown, Md., brought out a cloth bag dust collector that features simplified design of the filter bags and dust reclaiming mechanism.

The collector uses cloth bags and are fastened open end down to suspension members. A rubber hem is clamped over



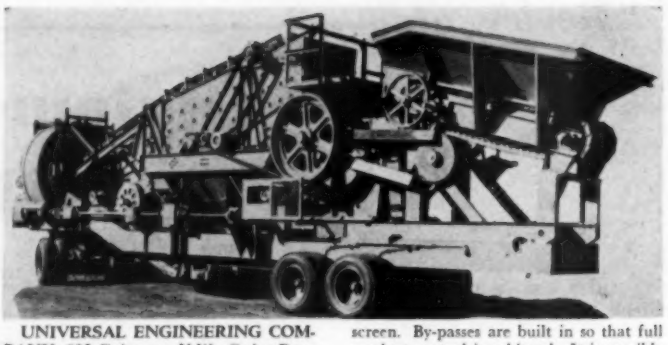
an opening in the floor of the collector. Dust-laden air enters at the bottom and drops the heavier portion in the air into the collecting hoppers as a result of reduced velocity. The air passes up through the bags and out through the exhaust at the top of the collector.

The bags are cleaned by stopping the flow of air and shaking the suspension members holding the bags which dislodges the dust. Sizes range from 5 to 40 ft. long with 1,360 to 10,880 sq. ft. of filter cloth and from 3 to 6 hoppers.

**CATERPILLAR TRACTOR COMPANY,** Peoria 8, Ill., designed a scraper for use with the D6 tractor.

The "No. 60" scraper has a 7-cu. yd.

struck, 9-cu. yd. heaped capacity. It has a double bottom with steel filler beams, a flat-bottom bowl, reversible cutting blade, and bulldozer type ejection. Operation is by cable control from the tractor.

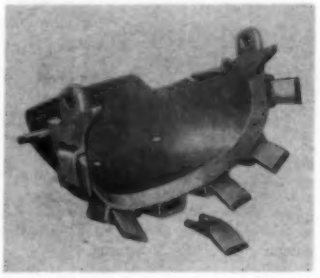


**UNIVERSAL ENGINEERING COMPANY,** 625 C Avenue N.W., Cedar Rapids, Iowa, marketed a portable crushing plant, the "293QH Limerock plant."

It is designed for 100 percent crushing and contains an 18- by 30-in. roller bearing jaw crusher, an 18- by 31-in. hammermill and a 4- by 10-ft. gyrating three-deck screen. By-passes are built in so that full product control is achieved. It is possible to produce aglime, road rock, and chips simultaneously, all aglime, or other combinations. Feeder, primary crusher and platform are bolted to the main frame and are removed to reduce weight when traveling.

**PARSONS COMPANY,** Newton, Iowa, adopted removable teeth on their "Trenchliners" as standard equipment.

The teeth are self-locking and retain a



sharp point until worn out. Reversing is unnecessary and replacement is by tapping out the old and tapping in the new ones. Tooth holders are cast on new buckets but adapters can be welded on existing ones.

**IOWA MANUFACTURING COMPANY,** Cedar Rapids, Iowa, brought out a portable plant designed to produce two sizes of graded aggregate and washed sand.

The "Model DJ-50" is a three-unit plant consisting of a crushing and screening unit, a single-screw, fine material washer, and a two compartment bin and conveyor unit. All of the units are completely portable. The capacity of the plant is 50 t.p.h.

The crushing and screening unit features a dual jaw crusher, the "1840-640," which has two crushing chambers—an 18- by 40-in. primary and a 6- by 40-in. secondary driven from the same eccentric shaft. This one crusher provides secondary and primary crushing in one machine and replaces two crushers frequently used.

**KOEHRING COMPANY,** Milwaukee 16, Wis., designed a high-lift stripping shovel for use on casting operations. It is a modification of the 2½-cu. yd. Model 1005. The boom and dipper stick have been virtually doubled to give a longer reach.

The boom is a twin-box section type 50 ft. long, and the dipper stick is a

single unit with cable crowd. The dipper is a 2- or a 2½-cu. yd. size depending on operating conditions. A 60-ft. crane boom can be extended to 150 ft. and will handle 2½- to 4-cu. yd. dragline buckets or 3- to 4-cu. yd. clamshells.

**ST. PAUL HYDRAULIC HOIST,** Minneapolis, Minn., brought out a line of dump truck hoists and bodies.

The hoists are made in 14 sizes to handle loads from 6 to 25 tons. Features include low mounting height; low oper-

ating oil pressure; roller-bearing drive mechanism; and a flexible sub-frame.

Matching bodies are made in a wide range of capacities. They feature box-type side braces and wrap-around sides. The reinforced tailgate has offset hinges for dumping control.

**GARDNER-DENVER COMPANY,** Quincy, Ill., brought out the "600" portable air compressor. The machine is designed for high capacity and is fully water-cooled to assure low discharge temperatures. It will deliver a full 600 cu. ft. of air at the rated speed.

**R. G. LETOURNEAU, INC.,** Peoria, Ill., created a swamp tire for use on heavy equipment operating on soft ground.

The tire is a special 48 x 68 in. It is more than 10 ft. high and 4 ft. wide, with an operating pressure of about 15 lb. It is manufactured by the Firestone Tire and Rubber Company, Akron, Ohio, to the specifications of LeTourneau.

The tire will carry a load of 17,500 lb. at speeds up to 20 m.p.h. It weighs 1,482 lb. and it is used with a low flange, wedge-type wheel.

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**GMC TRUCK AND COACH DIVISION, GENERAL MOTORS CORPORATION,** Pontiac, Mich., brought out a high compression truck engine with a ratio of 7.2 to 1 that develops 145 g.b.hp.

The engine, a six-cylinder type, weighs only 545 lb. Bore and stroke are 4 in.,

and displacement is 301.6 cu. in. Large valves, duplex carburetion, special design of pistons and cylinder heads, and improved location of valves and spark plugs assure full power on regular gasoline.

This engine, the "GMC 302" is used in the 2½- and 3-ton models of trucks and tractors.

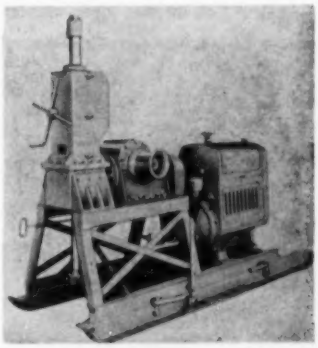
**BLAW-KNOX COMPANY, BUCKET DEPARTMENT,** Farmers Bank Building, Pittsburgh 22, Pa., added renewable bucket teeth to its line. The teeth consist of a base which is bolted to the bucket lip and a cutter that wedges into the base. The cutter is reversible and can be tapped out and a new one inserted.

Only the cutter is replaced so changing time is reduced greatly and maintenance costs are lessened. Bases may be obtained already drilled for most of the company's buckets but ones are available for drilling where necessary.

**LULL MANUFACTURING COMPANY,** 314 W. 90 Street, Minneapolis, Minn., developed the Model "3-B" shovel-loader for attaching to Case Model VAI and Minneapolis-Moline Model RTI tractors. This model has a ⅜ cu. yd. material bucket that is mounted so a mowing attachment can be used on the tractor without modifications. The bucket has lifting capacity of 1,800 lb. and a lifting height of 9 ft. The bucket is kept level during the lift. Attachments for use with the loader include crane hooks, bulldozer blades, snow buckets, and fluid-driven sweepers.

**ACKER DRILL COMPANY,** Scranton 3, Pa., developed a shot core drill that will drill holes up to 20 in. in diameter in any formation and up to a maximum of 600 ft. in depth.

The "Model KR" can be used to obtain cores or for drilling holes for blast-



ing, wells, etc. The entire unit is skid mounted and consists of a heavy-duty rotary drill head, a three-speed transmission, a cargo type hoist and a positive displacement pump.

The drilling shot is carried down the center of the drill rods to the cutting bit and the cuttings are flushed to the surface. No special training is required for persons to be able to operate this machine.

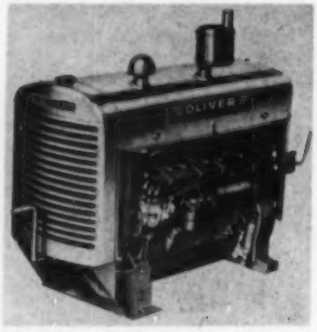
**CHAIN BELT COMPANY,** Milwaukee, Wisc., featured a new greasing method for conveyor belt idlers. The new method uses flexible automotive-type grease tubing that will take high pressures and not be broken in shipping. The tubing hugs the inside of the idler base with the connections placed to be accessible.

**COOK BROS. EQUIPMENT COMPANY,** 1815 N. Broadway, Los Angeles 31, Calif., designed a single passenger, short wheelbase truck, the "M310," to carry a large payload.

The truck has a wheelbase of 174 in. The body is high tensile lightweight metal with a payload capacity of 15 tons. Dual hydraulic hoists and dual gear drive are standard.

**THE OLIVER CORPORATION,** 400 West Madison Street, Chicago 6, Ill., brought out a series of power units of 73 hp.

This series, the "199" is available for gasoline and diesel fuels. They are six-

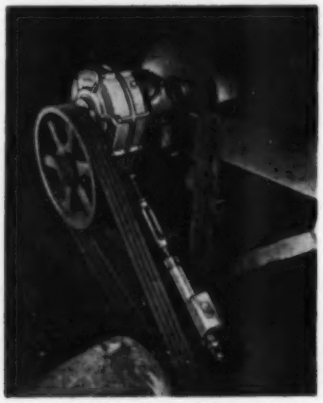


cylinder type with overhead valves, replaceable cylinder liners, 4-in. bore and stroke, and 302-cu. in. displacement.

Interchangeable parts between gasoline and diesel models include cylinder blocks, pistons, connecting rods, and bases. They are suggested for crushers, pumps, generators, compressors, conveyors, loaders and other equipment.

**DODGE MANUFACTURING COMPANY,** Mishawaka, Ind., announced a line of shaft mounted, torque-arm speed reducers.

These reducers mount on the driven shaft and are prevented from turning by a torque-arm. The reducer is driven by a V-belt from a motor. The torque-arm



contains a turnbuckle which serves as a take-up for belt tensioning. It may be equipped with an overload release to prevent injury to the machinery in case of serious overloads. The release takes tension off the arm and stops the drive, it also cuts off the motor and operates an alarm.

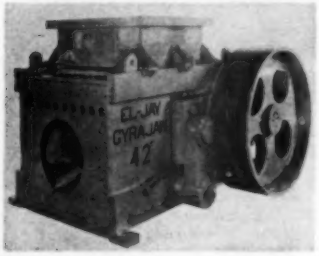
**S K F INDUSTRIES,** Philadelphia 32, Pa., made available sealed-in lubricant ball bearings that are interchangeable with conventional ones. The new type is made in single row SAE widths and with any combination of snap rings and metal shields. The seal is made of DuPont "Fairprene" which is not affected by lubricants, normal temperatures, or aging. These sealed-in bearings are being marketed as the "Red Seal" line.

**BUCYRUS-ERIE COMPANY,** South Milwaukee, Wis., introduced a 6-cu. yd. excavator with Ward-Leonard electric controls. The shovel has a lower boom that is rigidly connected to the A-frame. The upper boom is pin-connected to the lower boom and suspended from the A-frame by fixed length bridge strands.

The dipper handle is tubular and free to rotate in a saddle block which contains rubber shock absorbers. Crowd and retract are by twin ropes, and the crowd machinery is at the front end of the frame. Single-part doubled hoist ropes are attached to each side of the bucket through an equalizing sheave. The shovel is convertible to dragline operation.

**EL-JAY MANUFACTURING COMPANY,** 3440 Highway 99 South, Eugene, Ore., developed a crusher that combines oscillating and stationary jaws. The crusher has two crushing chambers formed by an oscillating jaw moving between two stationary ones.

The moving jaw approaches the sta-




tionary ones without any rubbing motion, which prevents an excess of fines. The "Gyrajaw" is said to handle muddy rock without clogging, and is available in 18- and 42-in sizes. Capacity is 41 and 175 t.p.h. respectively.

**HIGHWAY EQUIPMENT COMPANY,** 616 D Avenue Northwest, Cedar Rapids, Ia., added a center dump arrangement to its "New Leader" combination limestone and fertilizer spreaders.

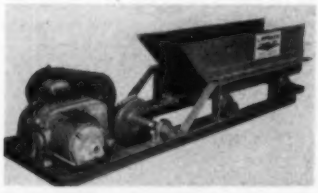
The center dump doors permit using the spreader for hauling road stone, gravel, and other materials to be dumped as well as for hauling and spreading agstone, fertilizer and other broadcast material.

**SCHRAMM, INC.**, West Chester, Pa., brought out a self-powered, self-propelled wagon drill, called the "Deluxe Pneumafeed."

The new model combines the features of a tractor, portable compressor, and a wagon drill. The drill can be used in a

180 degree arc at any angle and up to six feet to the rear of the tractor by use of an extension arm. It can drill horizontal holes 10 ft. above the ground or 3 ft. below. A breaker can be substituted for the drill for breaking and cutting use.

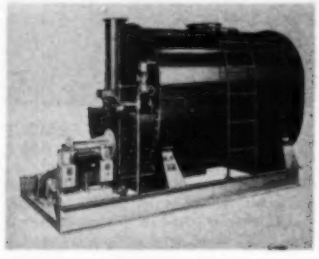
**LIPPMANN ENGINEERING WORKS**, 4603 W. Mitchell Street, Milwaukee 14, Wis., announced a ball-bearing equipped reciprocating plate feeder. The feeder is 20 in. by 5 ft. and is driven



by a babbitt-lined eccentric drive. Power is supplied by a 3-hp. variable speed electric motor gear reducer with belt drive operating over adjustable sheaves for fine feed control. A dial showing speeds is adjusted to give speed variation to suit the material being fed.

**CLEAVER-BROOKS COMPANY**, 326 E. Keefe Street, Milwaukee 12, Wis., announced the "High Temperature Oil Booster" which is a self-contained, fully automatic heating unit operating as a closed system vented to the atmosphere.

Heat is generated by a pressure atomiz-



**THE THEW SHOVEL COMPANY**, Lorain, Ohio, developed an attachment that converts the turntable of the TL-25 crane into a scoop shovel.

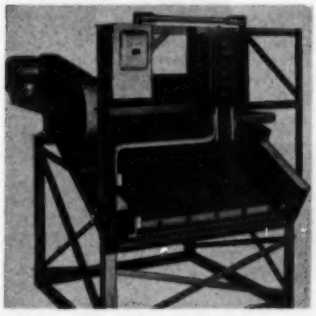
The attachment consists of a short rugged boom with a cable driven shipper shaft at the end. A double dipper stick is mounted to operate horizontally through rigid sleeves at the end of the boom. Pinions on the shipper shaft engage a rack on the dipper stick to give a crowding motion to the dipper. The entire front end is raised for dumping and the dipper is dumped by a tripping release.

The scoop can operate in headrooms of 10½ ft. The dipper has a capacity of 1¼ cu. yds. and will operate downgrade, upgrade or horizontally. It will handle any material that can be loaded by a pushing or lifting motion or a combination of the two.

ing oil burner. Pumps, valves, piping and temperature and oil level controls are all mounted on the base. The entire unit is mounted and ready for service line connections.

**DEISTER CONCENTRATOR COMPANY**, 901 Glasgow Avenue, Fort Wayne, Ind., brought out an electric screen heater.

The "Flex-Elex" screen uses low-voltage, high-amperage current to cause a mild heat in the screen wire, which dries any material that clings to it. The drying



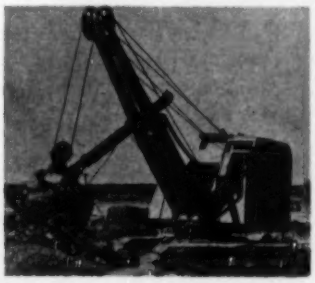
action does not appreciably reduce the moisture content of the screened material. It is only enough to prevent moisture from forming a bond and holding the particles to the wire. The FlexElex is made to fit the Leahy screens made by the company. New screens are factory-equipped but older ones may be converted in the field by the use of a conversion kit.

**SHELL OIL COMPANY**, 50 W. 50 Street, New York, N. Y., developed a lubricating oil for diesel engines and gasoline engines in stop-and-go service.

The oil, "Rimula" was designed to meet problems of diesel lubrication suggested by the Caterpillar Tractor Company. It contains additives that reduce ring sticking and piston lacquer, combat sludge formation, and extend engine life by reducing wear. It is especially suitable for conditions created by low loads, low temperature operation, and high sulphur fuels.

**FINDLAY DIVISION, GAR WOOD INDUSTRIES**, Findlay, Ohio, announced standard and heavy-duty models of the "75" excavator.

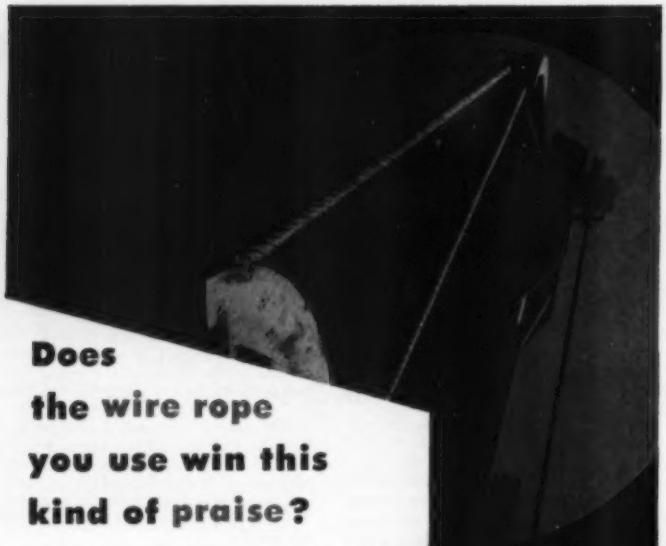
The machines are rated as ¾-cu. yd. shovels or 20-ton cranes. They are convertible to shovel, crane, dragline, clam-



shell, trench hoe, or pile driver in the field.

Features include power-actuated drums; direct right-angle drive; self-cleaning crawler treads; worm-driven boom hoist; and vacuum controls for steering and dipper trip.

**PHILADELPHIA GEAR WORKS**, Erie Avenue and G Street, Philadelphia 34, Pa., offered a line of gears—spur, worm, herringbone, helical, miter, spiral-bevel, "Hypoid," and curved-tooth speed reducers and gearmotors. The line includes all sizes and styles of gears in a wide variety of materials for all types of service. Speed reducers, MotoReduceRs, planetary speed reducers, worm gear speed reducers and herringbone reducers are included in the line.



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**WAGNER IRON WORKS**, 1905 S. First Street, Milwaukee 1, Wis., produced a front-end loader to fit Ford and Ferguson tractors.

The new model, the "WM-4," has a

capacity of ½ cu. yd. or a lift of 1,000 lb. A tractor-mounted hydraulic system powers the loader, which has 18 different attachments including backfill blades, snow plows, crane lift, snow bucket and forks.

**CONVERTO MANUFACTURING COMPANY**, Third and Green Streets, Cambridge City, Ind., brought out a medium-duty line of truck dump bodies and hoists.

The line is designed for trucks of 1½ to 2½ tons capacity, and features a direct

acting hoist for medium loads and a double arm type for heavy loads. Both raise the body to a full 60-degree dumping angle. The bodies have 8-gauge floors and are built for rough service.

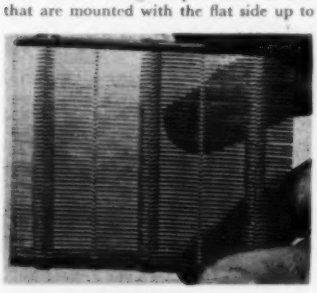
**ROCK BIT SALES AND SERVICE COMPANY**, Philadelphia 25, Pa., added a 4-point carbide tipped drill steel to its line of "Intra-Set" products. The steels are made in 1⅛- to 2¼-in. gauge sizes and in lengths to 12 ft. The ends have a four point chisel type carbide insert.

**HEIL COMPANY,** Milwaukee 1, Wis., announced the availability of the 2C500 "Heiliner" for commercial use. Previously this was built exclusively for military use.

The machine has a 13-cu. yd. scraper which is drawn by the tractor at speeds up to 25 m.p.h. loaded. Power is supplied by a Cummins diesel engine delivering 165 hp. Air brakes on tractor and scraper are synchronized.

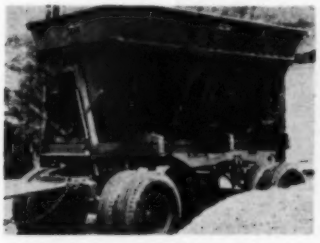
**HENDRICK MANUFACTURING COMPANY,** Carbondale, Pa., introduced a "Wedge-Slot" screen for dewatering service.

The screen consists of stainless steel bars with a wedge-shaped cross section that are mounted with the flat side up to



prevent blinding. The slot spaces are uniform in all sizes and are held from distorting by spacing rivets every inch and by spacing lugs between the profile bars that lock the mesh. Spacing from 0.004 in. to 0.04 in. are available.

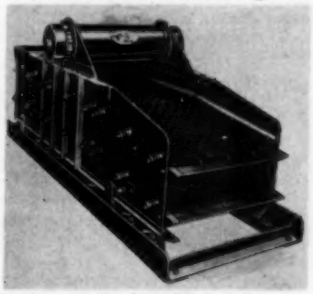
**GALION ALLSTEEL BODY COMPANY,** Galion, Ohio, brought out its "Roll-Over" body. These bodies are rounded and ride on self-contained outriggers that have teeth engaging in the channel tracks on the body. A locking



plunger holds the body upright and spring-loaded chains prevent tipping. For dumping a safety chain is released on the opposite side and the plunger is pulled down. This permits the body to roll over and discharge.

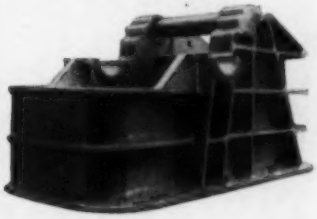
**DEISTER MACHINE COMPANY,** 1933 E. Wayne Street, Fort Wayne, Ind., introduced the "UHS" heavy-duty scalping screen.

This screen features cushioned vibration, automatic cloth tensioning, two-



bearing construction, elliptical-throw action, and "Unitized Headmotion." The screen has an elliptical throwing motion at the head end, a circular motion in the center, and a holding motion at the discharge end. This is said to give maximum screening action.

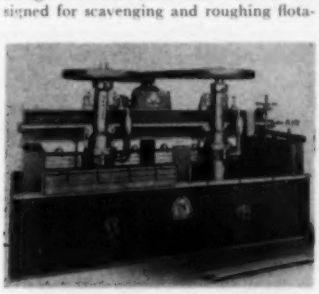
**BACON-PIETSCH COMPANY,** 149 Broadway, New York 6, N. Y., brought out an improved jaw crusher, the "Sterling." Features of the new machine are: increased strength, reduced weight, tapered bushings on flywheels, removable



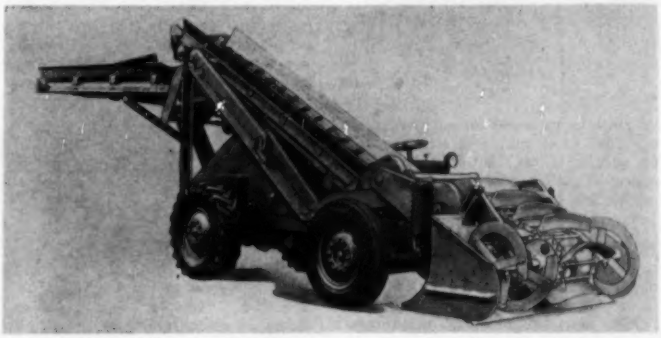
eccentric bearings, "A" frame flange design, and alloy steel contruction.

Electronic strain gauge testing has been used to increase the strength of parts more than 50 percent with a weight reduction of about 60 percent. Sizes range up to 60 by 48 in.

**DENVER EQUIPMENT COMPANY,** Denver, Colo., produced its "Super Rougher Flotation Machine" that is designed for scavenging and roughing flota-

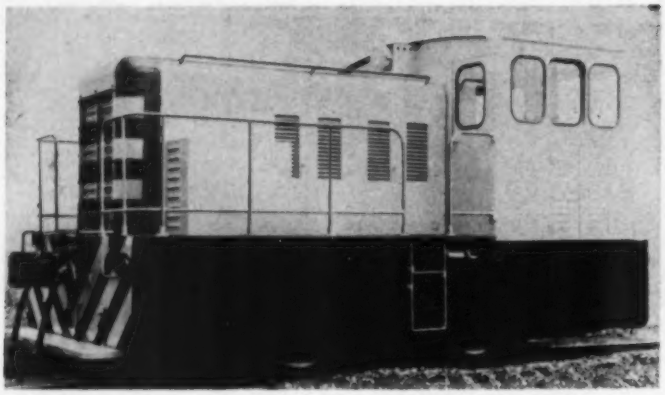


tion. The machine features low-level froth overflow on both sides, an open tank for pulp flow and super aeration, and two impellers on each shaft. The machine is flexible to meet changing conditions.



**ATHEY PRODUCTS CORPORATION,** Chicago 38, Ill., announced a stockpile windrow loader.

The "Athey Force-Feed HiLoader" features a full-floating feeder that is suspended from two coil springs and a pivot. An auger gatherer speeds up loading from stockpiles and wide windrows. Paddle blades feed the material to a 30 in. conveyor belt which is cleated to handle fine material as well as others. The discharge conveyor is swiveled to either side by hydraulic controls. Capacity is up to 10 cu. yd. a minute.



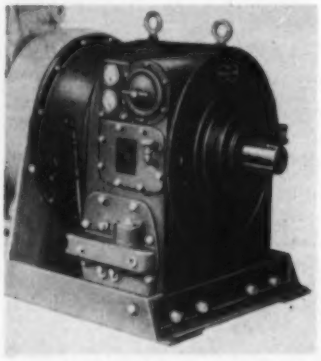
**BALDWIN-LIMA-HAMILTON CORPORATION,** Eddystone, Pa., built a diesel-hydraulic locomotive for switching and industrial use.

The new locomotive, the "Model SH 2190" is powered by a 6-cylinder, 4-cycle, supercharged diesel engine rated at 225 hp. It has a starting tractive effort of 17,500 lb. at 25 percent adhesion and 21,000 lb. at 30 percent. It is built for track gauges from 30 to 66 in.

Power transmission includes a Twin-Disc torque converter and a clutch with two speed transmission and an axle-hung reverse gear. Speeds are 10.6 and 28 m.p.h. The wheels are driven by heavy-duty roller chain connecting the axles, and are mounted in roller bearing journals. The air brake system is Westinghouse straight air type.

**TORCON CORPORATION,** 1176 W. Fifth Avenue, Ashtabula, Ohio, added a single-stage, three-element torque converter to its line.

The new "Model 17-K" combines a



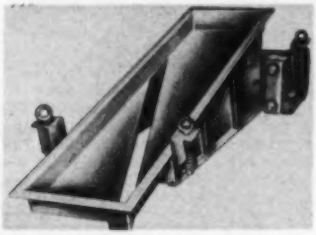
hydraulic torque converter and a hydraulic coupling in one unit. It is recommended for use on cranes, shovels, locomotives, material-handling equipment, and heavy machinery.

**ALLIS-CHALMERS MANUFACTURING COMPANY,** Milwaukee, Wis., announced a modification to the basic design of the "A-1" jaw crusher. This is the replacing of sliding toggles with dry rolling ones. This was done by reversing the curvatures of the toggle ends and seats. As the toggle ends roll there is no need for lubrication and less wear occurs.

A rubber apron keeps dust out of the toggle seats and a shear member is provided to permit non-crushable material to shear off some rivets without damaging the jaws or frame.

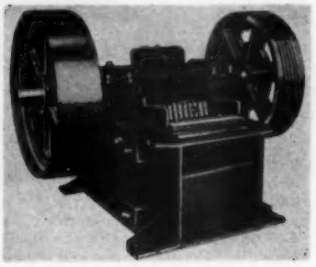
**SYNTRON COMPANY,** 385 Lexington Avenue, Homer City, Pa., developed a vibrating spreader feeder for supplying a continuous curtain of materials such as roofing granules.

The device is a flat pan with a diagonal slot that distributes the material in a



steady flow along its edge. An electromagnet provides the vibration for operation. Rate of feed is adjustable and several sizes and capacities are available.

**PIONEER ENGINEERING WORKS,** Minneapolis 13, Minn., designed a completely portable crushing and screening plant for gravel and stone. The plant can be set up without the use of cranes or power equipment. It is entirely self-

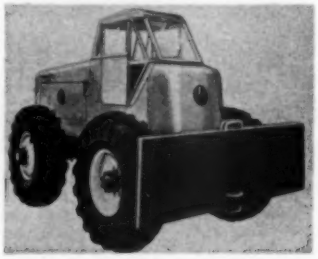


contained and has a capacity of 50 t.p.h., and is designated the "Model 33R Triplex."

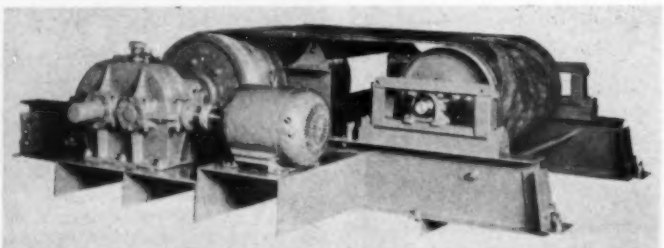
The plant can be placed in position and completely set up by the use of hand tools and plant mounted winches and hydraulic rams. All equipment, including conveyors, is mounted on the main plant.

**FRANK G. HOUGH COMPANY,** Libertyville, Ill., brought out a four-wheel-drive tractor.

The "TM Payloader" is available with a 106-hp. gasoline engine or a 90-hp. diesel and develops a drawbar pull of



16,000 and 14,000 lb. respectively. Other features are: full reversing transmission; four gear ratios in either direction; speed to 27 m.p.h.; torque converter in addition to a friction clutch; rear wheel steer with hydraulic booster; and large-size 16.00-24 tires all around.



**HOMER MANUFACTURING COMPANY,** 142 E. Pearl Street, Lima, Ohio, is manufacturing a line of magnetic pulleys for all types of service.

The "Power-Plus" magnets are made for 12- to 20-in. diam. pulleys in widths from 4 to 60 in. These permanent magnets are made of Alnico metal which is said to be the best material made for this use. Units incorporating magnetic pulleys in short belt assemblies for magnetic separation are also manufactured.

# It's EAGLE all the way!

## at MORRIS SAND & GRAVEL CO., MORRIS, ILLINOIS

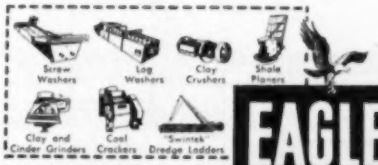
EAGLE engineered, designed and built this highly productive material washing, classifying and dehydrating plant from the ground up. Those mountains of clean, graded sand in the background are not just a vision.

Morris' deposit runs heavy to sand. Gravel is wasted or sold locally. This plant processes over 100 tons per hour. Five to six barges a week are freighted up the Illinois Waterway to Chicago.

Preliminary classification takes place in the two Eagle Water Scalping Tanks. These are fed from a screen with 1" scalping deck, a $\frac{3}{8}$" middle and a $\frac{3}{16}$" bottom deck. The double screw unit at left produces mason sand, the double screw in the center produces No. 1 torpedo sand and the double screw at right produces No. 2 torpedo. The single screw unit, with section of paddles, right foreground, handles the minus $\frac{3}{8}$" plus $\frac{3}{16}$" material. The extra abrading action afforded by this paddle equipped unit gets rid of the clay, which was a problem, prior to its installation.

Water inlet valves on both tanks at feed end help to float fines to opposite end, at left, permitting concentration of heavier sand at feed end, thereby assisting classification and re-blending to make the three types of sand. Material is dredged from a "bayou" with 8" pump.

Eagle Washing and Classifying equipment may be the solution to your problem. Get the opinion of experienced Eagle engineers — no obligation. Ask for Catalog 47.




LEADERS IN AGGREGATE WASHING AND CLASSIFYING EQUIPMENT FOR HALF A CENTURY

EAGLE IRON WORKS

133 HOLCOMB AVE., DES MOINES, IOWA.

# new machinery and supplies

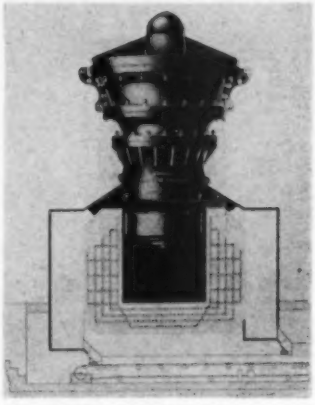
PIT AND QUARRY

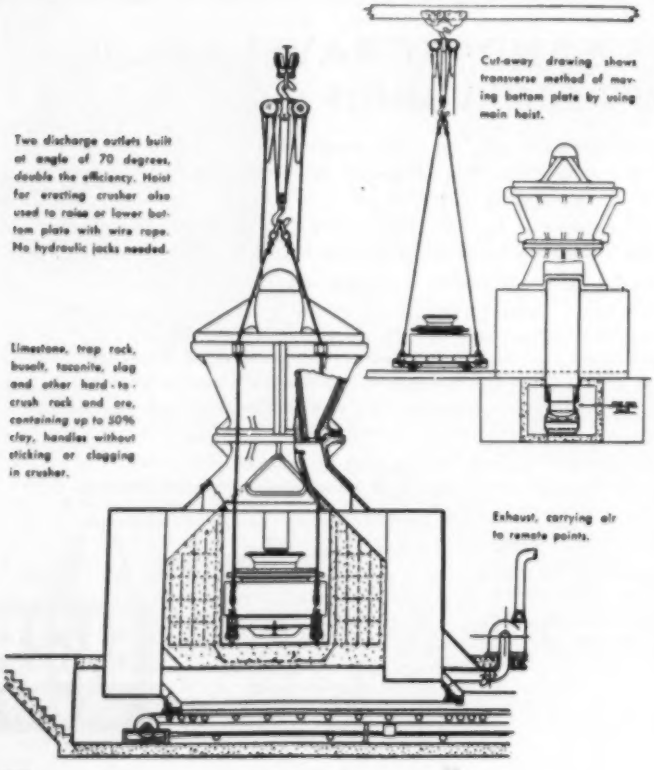
## • Gearless Gyratory Crusher

A new gearless gyratory crusher designed to eliminate clogging of rock and ore in discharge vents has been announced by the Kennedy-Van Saun Manufacturing and Engineering Corporation, 2 Park Avenue, New York, N. Y. This crusher, which is available in either primary or secondary types, has a synchronous motor built into the pulley assembly. The motor has a starting torque of 250 percent and a pull-out torque of 300 percent. There are no gears and power is used only for the actual crushing operation. All moving parts are mounted on self-aligning roller bearings and the eccentric and ball are spray babbitted.

The material being crushed passes through the mantle and concaves at the bottom and through two discharge outlets which are at 70 deg. angles. The crushed material drops 6 feet vertically after leaving the crushing chamber in order to separate the clay and stone. It can handle trap rock, basalt, slag, limestone and other materials and ore containing as high as 50 percent clay without clogging. Reductions to as fine as 1/16 in. are possible.

Other features include a recirculating forced-feed oil system and an automatic power shut-off in event of oil pressure failure. No hydraulic jacks are required to raise or lower the bottom plate of this crusher.

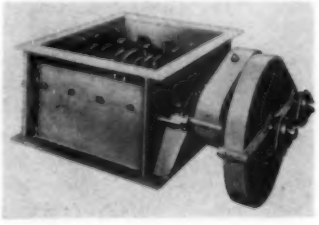



Cut-away drawing shows transverse method of moving bottom plate by using main hoist.
Two discharge outlets built at angle of 70 degrees, double the efficiency. Hoist for erecting crusher also used to raise or lower bottom plate with wire rope. No hydraulic jacks needed.
Limestone, trap rock, basalt, taconite, slag and other hard-to-crush rock and ore, containing up to 50% clay, handles without sticking or clogging in crusher.
Exhaust, carrying air to remote points.

## • Double Roll Clay Crusher

The Eagle Iron Works, 129 E. Holcomb Avenue, Des Moines, Ia., has announced a crusher for shale, clay, kaolin, and similar material.

The crusher has a double roll, one of which turns at 35 r.p.m. and the other at 70 r.p.m. This gives a cutting, crushing and hammermill action to the machine. The shafts are mounted on self-aligning double roller bearings to compensate for shaft deflection under load, and the side of the frame opposite the drive is detachable for replacement of the spiral hooked cutters.



There are three sizes of the clay crushers; the Senior with a 100-200 tons per hour capacity; the Standard with 25-100 t.p.h.; and the Junior with 10-15 t.p.h.

# they'll rely on these Vulcan ROTARY KILNS

At what may be the largest plant in the world devoted exclusively to the production of light-weight aggregate, the Basalt Rock Corporation of Napa, California, has recently installed four Vulcan Continuous Rotary Kilns, each 8 ft. in diameter by 125 ft. in length. All four shells were shipped as shown in the illustration above —with the two cast-steel tires in position and a supporting cast-steel flange on each shell: ready to receive a cast-steel ring gear with machine-cut teeth.

Efficient, economical, production of high-grade light-weight aggregate requires that the kiln, or kilns, be designed to provide the correct temperature range, and the correct rate of travel, for the material to be expanded. Vulcan engineers have been highly successful in this relatively new field and welcome opportunities to submit designs and proposals based on results already obtained under a wide variety of operating conditions and requirements. No obligation unless, or until, our proposals are accepted.

## THIS BOOKLET MAY SAVE YOU MANY HOURS OF PRECIOUS WORKING TIME

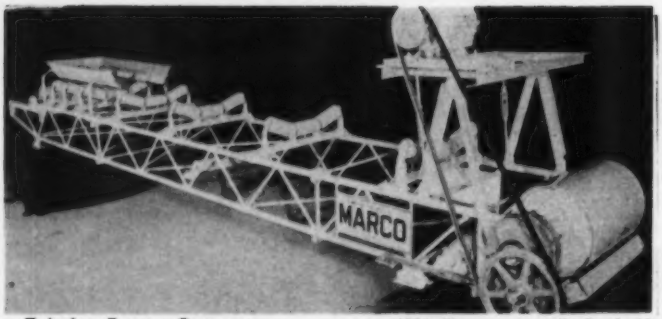
**It tells how to keep kilns running when trouble occurs—either permanently or until replacement parts can be secured. Better still, it tells how to PREVENT TROUBLE through proper precautions during installation and by watching out for conditions which may cause trouble if not corrected in time. Free on request to any one who can use it to advantage. Ask for Bulletin No. 389.**

## VULCAN IRON WORKS

Established 1849

Main Office and Works **WILKES-BARRE, PA.,** New York Office 50 Church

| | | | |
|---|---|---|---|
| Rotary Kilns, Coolers and Dryers | Double-Roll Briquetting Machines | Heavy-Duty Electric Hoists | Steam Locomotives |
| Rotary Retorts, Calciners, Etc. | Open-Hearth Steel Castings | Self-Contained Electric Hoists | Diesel and Gasoline Locomotives |
| Improved Vertical Lime Kilns | Steel-Plate Fabrication | Scraper-Loading Hoists | Diesel-Electric Locomotives |
| Automatic Quick-Lime Hydrators | Shaking-Chute and Chain Conveyors | Cast-Steel Sheaves and Gears | Electric Locomotives and Larrys |




### • Tubular Frame Conveyor

The E. F. Marsh Engineering Company, 4324 Clayton street, St. Louis 10, Mo., is manufacturing a tubular frame conveyor. This conveyor uses tubular trusses which are claimed to be stronger than other shapes and that prevent build-up of material as the rounded surface sheds material and prevents accumulations.

These conveyors are sectionalized. Head end and tail end assemblies are bolted to the required number of intermediate sections to make up a conveyor of the desired length. Gravity take-ups, hold-backs, belt or chain drive are some of the optional features of the line.

### • Mobile Calcining Unit

A mobile self-contained unit for calcining purposes especially the production of expanded clay granules, has been developed by Flex-I-Kal Furnace Company, Columbus 16, Ohio.

The unit is easily disassembled and reassembled if it is to be used as a mobile

unit. It can be operated continuously or as a batch machine as desired, and is said to have heat, feeding, and atmosphere controls individually variable through a series of treatment zones.

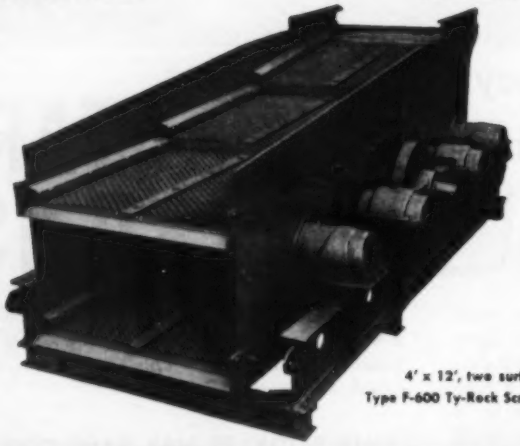
### • Chain Saw

A five hp. chain saw weighing only 29 lb. has been brought out by Mall Tool Company, Chicago 19, Ill.

The new model "2MG" is completely die cast for light weight. It features automatic oiling of chain, sprocket, and bar; one-hand rewind starter; automatic clutch; and a safety-stop button.

The engine has an all-position carburetor, dust and rain proof magneto, and high efficiency.

YOU CAN DEPEND ON
TY-ROCK SCREENS
BALANCED RUGGED



4' x 12', two surface
Type F-600 Ty-Rock Screen

THE W. S. TYLER COMPANY
CLEVELAND 14, OHIO
Manufacturers of Woven Wire Screens and Screening Machinery

BELT LACING
for: all conveyor belting
1/4" to 7/8" thick.

THE DUAL PURPOSE LACING for PATCHING & SPLICING
No Special Tools Required: JUST A HAMMER
*Write for Bulletin and name of Distributor*

THREE POINT BELT LACING CO.
Peace Dale, R. I.
*Formerly Mfg. By The Bristol Co.*

The most economical air-entraining agent on the market!
NET WEIGHT
ERTRANE C
overcomes the disadvantages of conventional additives!

Nopco Ertrane* C has been specifically formulated to afford the cement producer an outstanding air-entraining agent that not only *saves time and labor,* but assures high quality air-entraining portland cement.

**It is only necessary to add Ertrane C to water and stir. The agent dissolves quickly and completely.**

**No additional chemicals are required at any time.**

**Feed systems remain clean when Ertrane C is used — no time lost purging.**

Profit by putting Nopco Ertrane C to work for you. Informative booklet and full information are available upon request.

*Reg. U. S. Pat. Off.

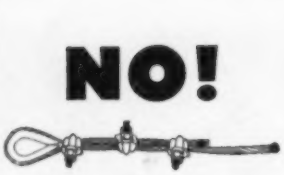
NOPCO
EVOLVED THRU RESEARCH

# NOPCO

**CHEMICAL COMPANY Harrison, N. J.**

*Branches: Boston • Chicago • Cedartown, Ga. • Richmond, Calif.*

Here, conventional U-Bolt clips are properly applied but rope is distorted and subject to life-shortening strains under load.

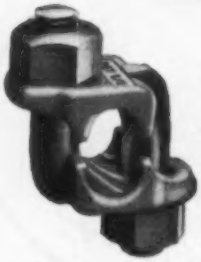



Inexperienced workmen can easily put conventional U-Bolt clips on incorrectly with saddles not on load-line. Result: Weakened rope — risk of accidents.

# It CAN'T Go On Wrong

Both halves of the Laughlin Safety "Fist Grip"* clip are identical. There is no wrong way. The most careless workman can't put 'em on wrong (unless he forgets to tighten the nuts). And they're not only safer and practically foolproof, but they're a darn sight easier to use.

## Here's why:



Nuts are out in the open, can be tightened with any wrench, and don't have to be "inched around."

Bolt ends are shorter and don't get battered or bent. Nuts are always easy to remove when clip is to be re-used.

No crushed rope ends, under "Fist-Grips" to cut off. Rope saved.

Fewer clips are required in many installations, so there is less work to do.

*"Fist-Grip"* Clips are just one example of many LAUGHLIN EXCLUSIVES in design, safety and quality that make Laughlin your best buy in wire rope and chain fittings.

*Look for the trademark* *to be sure*

THE THOMAS LAUGHLIN COMPANY
122 FORE ST., PORTLAND, MAINE

# LAUGHLIN

THE MOST COMPLETE LINE OF WIRE ROPE AND CHAIN FITTINGS

*Patented, T.M. Reg.


### • Safety Crane Hook

A crane hook that locks in a closed position when pressure is applied has been developed by Chicago Steel Foundry Company, 37 street and Kedzie avenue, Chicago 32, Ill.

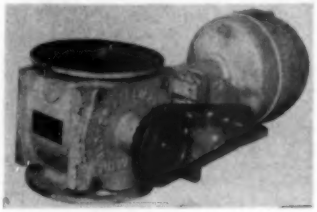
The hook is made of an alloy of chrome, nickel-molybdenum steel with a tensile strength up to 150,000 p.s.i. The

hook closes when load is applied and locks into a socket in the interior of the bail. The hook knob remains in the socket and carries the load as long as the load is being applied. These hooks are available in capacities from 5 tons up.

### • Rotary Feeder Valves

The new line of feeder valves known as "Blo.pco N-Series" have been developed to handle fine materials, especially those that are conveyed by pneumatic systems and those that are batched by volumetric methods. These valves are products of Blower Application Company, 3159 N. 30th Street, Milwaukee 16, Wis.

The rotary valves have cast bodies, end plates and rotors. They are generally made of cast iron but may be made of brass for spark-proof service. Rotors have

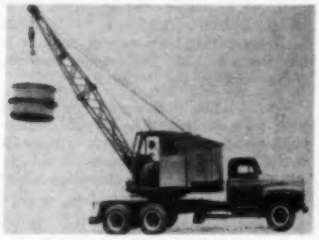


six vanes and at least two are always in contact with the body to prevent leakage. Tips of the vanes are spring backed and fitted with replaceable wiper blades which may be obtained in several types of materials for specialized applications. A feature of this series of valves is the vented type of construction. This allows escape of the air from the empty pockets on the rotor to the feeding bin so that bubbling of the material does not occur when feeding from low pressure to high pressure areas. The vented construction is optional.

### • 6-Ton Truck Crane

The Lorain "Model TL-10" has been added to the line of the Thew Shovel Company, Lorain, Ohio. This is a 6-ton capacity truck crane that can be converted to a ⅜ cu. yd. dragline or clamshell.

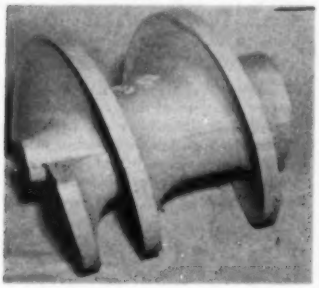
The crane consists of a complete superstructure designed for mounting on a truck chassis. However, it can be mounted on barges, ships, bins, docks, trailers, railroad cars, and piers.



The new model incorporates such features as unit assembly of "packaged" components, oil enclosed gears, anti-friction bearings, interchangeable clutch shoes, safety glass windows, and lights. It has two hoist drums, boom hoist drum, 25 ft. boom that can be lengthened by additional center sections to 45 ft., and drop forged turntable rollers. Optional features are: tagline, fairlead, and precision power boom lowering.

### • Replacement Parts

Replacement parts of abrasion resisting metal such as "Ni-Hard", "Ni-Resist", and corrosion resisting and heat resisting alloys are available from American Abrasive Metals Company, 460 Coit Street, Irvington, N. J.



Such typical parts as mill liners, pump castings, pan bottom liners, block machine parts, and similar wearing items can be made to specifications.

### • Pneumatic Vibrators

The "Branford" line of pneumatic vibrators includes sizes and types for use on bins, chutes, hoppers, screens, block machines, forms, and similar items where clogging, blinding, or slow flowing is a problem or where compaction is needed in molding operations.

The vibrators, which are made by the New Haven Vibrator Company, New Haven 7, Conn., come in several styles and sizes to handle a wide variety of applications. Side mounting, end mounting, hook-on, and other types are available.


AEROTURN "ON THE JOB"

5 REASONS Why AEROTURN Can Do A Better Dust Collecting Job For You . . .

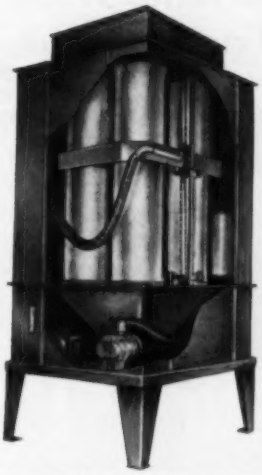
1 AUTOMATIC SELF-CLEANING OF FILTER prevents dust accumulation around filter elements. NO costly "downtime" for filter cleaning. NO costly manual cleaning.

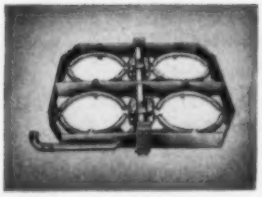
2 50% to 75% SAVING IN ERECTION TIME due to AEROTURN'S Unit Assembly Design. Precision manufactured, prefabricated sections readily assembled. All parts prime painted, boxed for shipment.

3 MINIMUM OF PLANT SPACE REQUIRED — uses only ⅓ to ½ the space required by other types of dust collectors of comparable capacity.

4 AEROTURN DUST COLLECTION "KNOW-HOW" built in to all AEROTURN Dust Collectors. *High efficiency and automatic self-cleaning design tested and proven in hundreds of installations.*

5 AEROTURN'S EXCLUSIVE BLOW RING CRADLE — a patented, fully automatic, self-adjusting, self-aligning blow ring assembly holds the rings snugly in contact with the wool felt filter bags at all times for maximum efficiency and filter bag service.





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READ ABOUT "UNIT ASSEMBLY" DESIGN FOR EASY INSTALLATION

WRITE FOR THIS BOOK — SEE HOW THE AEROTURN DUST COLLECTOR CAN SOLVE YOUR PROBLEM.

NAME _____

COMPANY _____

STREET _____

CITY _____ ZONE ___ STATE _____ E

TURNER & HAWS ENGINEERING CO., INC.
100 SIMBROCO ST. BOSTON 32, MASS.

# personal mention

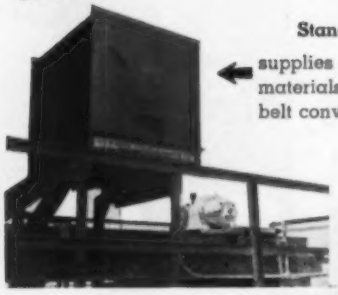
ROBERT G. BILLINGS has been promoted to assistant safety engineer for the Potash Company of America plant at Carlsbad, N. M. He is assistant to Jack Hessler, head of the safety department.

ROBERT W. MCELROY has been promoted to the new position of safety and security director for Minnesota Mining and Manufacturing Company and its subsidiaries.


The YARDSTICK of Efficient Weighing...

MERRICK SCALES

...in 1953



Standard MERRICK Weightometer* supplies a continuous weight record of bulk materials in transit. Applicable to any size belt conveyor, inclined or horizontal.

WSS MERRICK Weightometer* with belt conveyor, for use where a conventional belt conveyor is unsuitable for a standard Weightometer.

*Write for Bulletins 375 and 551*

MERRICK Feedoweight* controls the feed of bulk materials to process by weight.

*Reg. U.S. Pat. Off.

Your plant will measure up to the needs of the New Year if MERRICK Weightometers & Feedoweights handle your weighing & feeding requirements.

These speedy, high-precision, automatic weighing units help to keep production lines open by providing reliable weight data at any desired stage, and are a "sure bet" to promote product uniformity.

MERRICK SCALES are superbly designed and built for easy installation, and long, low-cost service life.

MERRICK SCALE MFG. CO.

180 AUTUMN STREET • PASSAIC, NEW JERSEY


DR. WILLEM RUDOLFS, chairman, department of sanitation, Rutgers University, New Brunswick, N. J., has announced that he will retire from his duties in January. Dr. Rudolfs has been conducting a research fellowship on trade wastes for the National Lime Association at Rutgers.

According to an announcement released by H. A. Clark, president of the Consumers Company, Chicago, Ill., ROBERT M. BRIDGES has been named assistant to the president. Mr. Bridges was formerly credit manager for the firm.

The following changes in personnel have been announced by Donald Sutherland, vice-president in charge of sales for the Giant Portland Cement Company, and its subsidiary, the Carolina Giant Cement Company, Philadelphia, Pa.

JOHN D. WILSON, Rapid City, S. D., has been elected executive vice-president of both companies.

HOWARD S. PONZER, formerly vice-president in charge of production, has been named vice-president in charge of engineering and development.

FRANK T. LAMEY, controller, has been elected assistant secretary (succeeding Alice K. Zorn, resigned), in addition to his former duties.

ROBERT S. CRAWFORD, treasurer, has been appointed director of purchases in addition to his other duties.

Mr. Wilson has been secretary-treasurer of the South Dakota Cement Plant at Rapid City since 1946.

ROBERT N. AVERY, sales manager of plaster and lime products for United States Gypsum Company, was recently promoted to merchandising manager of the company's insulating division.

GEORGE W. MOYERS has been promoted from general sales manager of the Phosphate Division of International Minerals and Chemical Corporation to vice-president in charge of the division. A company employee for 25 years, he succeeds Franklin Farley, who has resigned.

Personnel changes have been announced for the United States Gypsum Company, as follows:

PAUL W. SPLITTDORF, Chicago, former assistant sales manager of the firm's insulation products, appointed manager of the northern states district, with headquarters in Minneapolis; KENNETH R. ECKROTE, appointed eastern region operations manager, with headquarters in Chicago; JOHN W. BLEDSOE, named production manager of the central division at Chicago; and E. R. GLENNON, new merchandise manager of the plastering department at Chicago.

F. T. SHEETS JR. has been appointed director of engineering and operations of the Southwestern Portland Cement Company, Los Angeles, Calif., effective October 1, 1952. Mr. Sheets succeeds W. H. Cleary, who recently resigned.

G. C. Davis

J. T. Putnam

GEORGE C. DAVIS JR. recently was named assistant general sales manager of the Chemical Division of Kaiser Aluminum & Chemical Sales, Inc., by Frank M. Cashin, general sales manager.

J. T. PUTNAM, formerly Los Angeles district sales manager, will move into the newly-created position of Western Division sales manager and will maintain headquarters in Oakland.

R. L. PETERSEN will be sales manager of a new Central Sales Division, with headquarters in the Chicago area. This division was established to handle increased sales volume of the company's basic refractories and chemicals.

Mr. Davis is a resident of Berkeley, Calif., and will maintain offices in Oakland. An alumnus of the University of California, he has been with the Kaiser organization since 1943. Before his recent of the American Institute of Mining and Metallurgical Engineers and the American Ceramic Society.

Mr. Putnam is an alumnus of the University of Washington. He started with the company in 1942. He is affiliated with the A.I.M.E. and the American Ceramic Society.

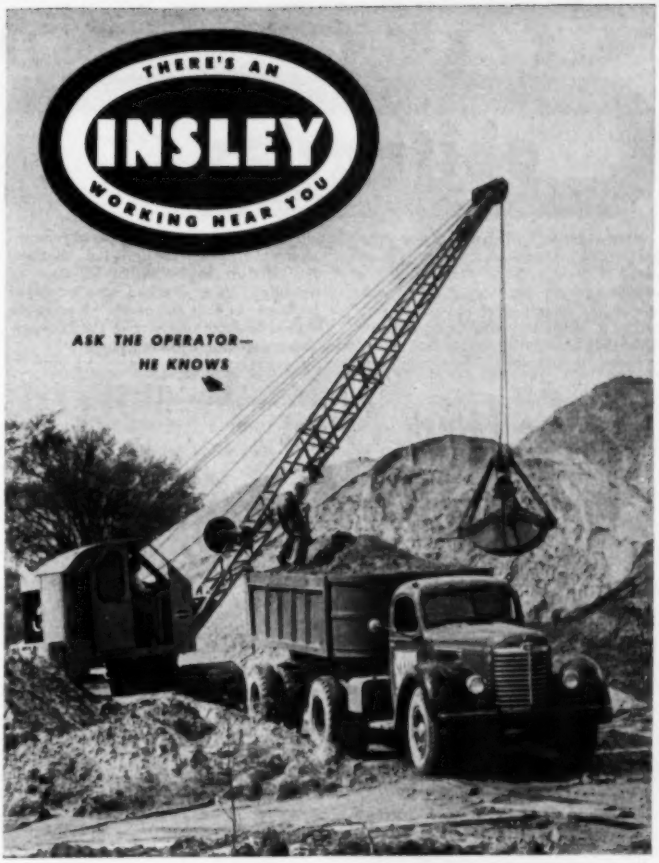
Mr. Petersen has been with the Kaiser organization since 1943 Before his recent appointment he was southwest sales district manager in Houston, Tex. He attended the Engineering School of the College of the Pacific and is a member of A.I.M.E.

JOHN J. HICKEY, former advertising manager of gypsum wall boards for National Gypsum Company, Buffalo, N. Y., has been appointed assistant advertising manager of the Georgia-Pacific Plywood Company.

The Board of Directors of National Gypsum Company, Buffalo, N. Y., announced the election of JOHN W. BROWN to the position of vice-president in charge of dealer sales. WADE W. HILDINGER was named general sales manager of dealer sales.

Mr. Brown, formerly general sales manager, began his career with National Gypsum as a salesman in 1935. During his service with the firm he has played a large part in National Gypsum's growth from a company doing an annual business of $4,000,000 to its present estimated $100,000,000.

Mr. Hildinger joined National Gypsum in 1942, also as a salesman. He served for two years as district sales manager before becoming director of trade relations and subsequently assistant general sales manager at the Buffalo executive offices.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INSLEY MANUFACTURING CORPORATION • INDIANAPOLIS 6, INDIANA

# obituaries

HENRY JAEGER, 61, founder and president of the Jaeger Sand and Gravel Company, Milwaukee, Wis., died recently of a heart ailment. His firm, reported to be one of the largest sand-and-gravel companies in Wisconsin, was founded in the early 1920's.

HENRY M. MARTIN, 83, retired superintendent of Rock Asphalt Inc., Buffalo, N. Y., died on November 24 after an extended illness. He had been employed by Rock Asphalt for nearly 50 years, he retired as superintendent of the Fillmore-Delevan plant 12 years ago.

LEOPOLD E. BLOCK, 83, honorary chairman of the board of Inland Steel Company, East Chicago, Ind., died recently in a Chicago hospital. He was one of the founders of Inland Steel and its subsidiary, the Inland Lime and Stone Company, Manistique, Mich. Mr. Block was with Inland Steel for over 55 years, serving as vice-president and treasurer in the firm's early years, as chairman of the board from 1919 to 1940, and as chairman of the finance committee from 1940 to last January, when he was made honorary chairman of the board.

JERE W. HIGGS, chief engineer and director for the Gifford-Hill Companies, Dallas, Tex., died in that city on November 30. Before joining the firm in 1929 he had been in the engineering department of the Texas and Pacific Railway Co.

Mr. Higgs was well known in the Southwest for his design work on and construction of slag crushing, railroad ballast, sand, gravel, filter materials, ready-mixed concrete, concrete pipe, and asphaltic concrete plants. He has been succeeded by John R. Hill Jr., who has been with the companies since the end of World War II.

JAMES EUGENE BRAIDFOOT, a maintenance engineer for the Lehigh Portland Cement Company at Allentown, Pa., died recently of poliomyelitis at his home in that city. Mr. Braidfoot had been active in community efforts to eradicate the disease.

ERNEST M. AYERS, who retired in July as chief engineer of the Hercules Cement Corporation plant at Stockertown, Pa., died recently after a brief illness. He was 65 years old.

FILMORE A. RIPPIE, who formed the Mulvane Sand Company, Mulvane, Kans., in 1949, died in Winfield, Kans., at the age of 56. Previously he had been associated with the Webb City and Joplin Sand Company.

HARVEY NATHANIEL DAVIS, 71, third president of Stevens Institute of Technology, Hoboken, N. J., died on December 3 in Roosevelt Hospital, New York City.

Dr. Davis, who retired in 1951, after 23 years as president of Stevens, had undergone surgery two weeks previously.

Dr. Davis was a member of a number of professional societies including the following: the American Society of Mechanical Engineers, of which he was president in 1938; the Smithsonian Institute, of which he was a regent; the Edison Foundation; the Franklin Institute and; the American Association for the Advancement of Science.

CHARLES T. O'LEARY, 59, assistant treasurer and assistant secretary of the Penn-Dixie Cement Corporation plant near Bath, died at his home in Nazareth, Pa. He had been with Penn-Dixie since 1918, when he took a position at the Portland Point, N. Y., plant. He was transferred to the Bath plant in 1927.


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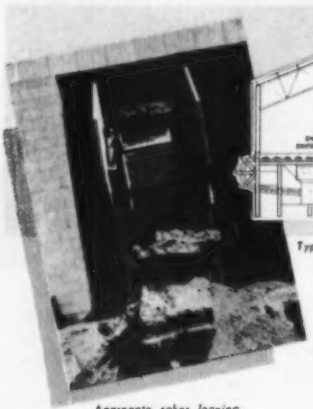
Typical Dwight-Lloyd Lightweight Aggregate Sintering Plant.



Aggregate cakes leaving pallets at discharge end of sintering machine.

Make your own expanded aggregate—light, strong, stable and with superior wet-dry contraction characteristics—from clay, shale, fly ash and other suitable residues or waste materials, using the

DWIGHT-LLOYD®
SINTERING MACHINE

- LOW PRODUCTION COSTS—Automatic operation, no skilled labor required.
- CONTINUOUS OR INTERMITTENT—Operate 24 hours a day or intermittently without loss of efficiency, standby or restarting costs.
- LONG LIFE—LOW MAINTENANCE—Many plants in continuous operation for over 30 years with exceptionally low maintenance.
- CAPACITIES—Standard machines available from 250 to 2,500 cubic yards per day.

*Pilot Sintering Plant at your service for testing materials under actual operating conditions. Let us test your raw materials and offer our recommendations to meet your requirements.*

LIGHTWEIGHT AGGREGATE DIVISION
SINTERING MACHINERY CORPORATION
130 SINTER AVENUE NETCONG, N. J.

ROBERT M. CORTRIGHT, a retired executive of the Allentown Portland Cement Company, died on October 20 at a hospital in Northampton, Pa. Prior to his retirement two years ago, he served as superintendent of the Allentown plant and as a sales representative of the company. Before that Mr. Cortright was a chemist with several cement companies in the Lehigh Valley cement district.

CHARLES O'LEARY, 59, assistant secretary and assistant treasurer of Penn-Dixie Cement Corporation plant near Bath, Pa., died on October 30 at his home in Nazareth. He had been with Penn-Dixie since 1918, working at the Portland Point, N. Y., plant for nine years and the remainder of the time at the Bath plant.

L. C. BONNELL, retired superintendent of the old Commonwealth Quarry Company, now the Summit operation of the North Jersey Quarry Company, died recently at the age of 83 at his home in Summit. During his long career at the Commonwealth quarry he served as superintendent, director of the company, and technical adviser to its sales department; he retired eight years ago.

LEE ROY STOLBERG, traffic manager for the New England Lime Company, Adams, Mass., died on October 22 at Pittsfield, Mass.

JOHN BERNARD EDWARDS, 67, equipment supervisor in the transportation department of the National Gypsum Company for the last five years, died on November 1 in Buffalo, N.Y.

Born in Buffalo on April 18, 1885, Mr. Edwards was known throughout the country in the traffic and transportation field. He was a former director of the Buffalo Transportation Club and a member of the Buffalo Traffic Club.

C. DANA WARD, vice-president of Cumberland Quarries, Inc., Indianapolis, Ind., died on October 7 at his home of a heart ailment. Mr. Ward had served as vice-president of the company since its organization in 1941, and had been active in the crushed stone business in Ohio and Indiana since 1912. He was one of the founders and a former president of the Highway Materials and Equipment Association.

LAFEYETTE L. WILLIAMS, 76, general foreman at the Universal Atlas Cement Company plant at Hannibal, Mo., died recently at his home in Hannibal.

ALEXANDER W. KNOX, 66, engineer for the Standard Materials Corporation, Indianapolis, Ind., died on December 2 in that city after a brief illness. He formerly operated an engineering firm of his own, but had been with Standard for several years.

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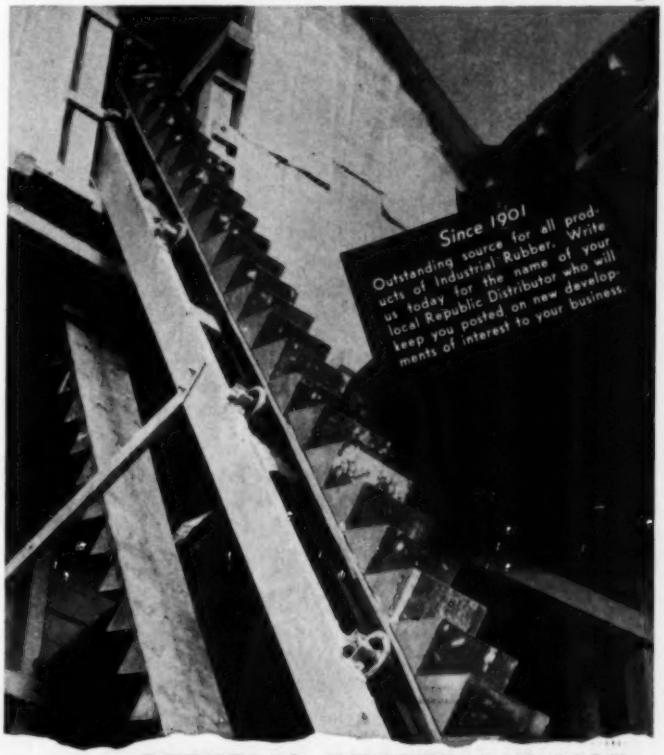
Output of crude gypsum and of virtually all gypsum products during the first quarter 1952 was substantially less than in the first quarter of 1951, according to reports of producers to the U. S. Bureau of Mines. Domestic crude gypsum mined was 14 percent less and the quantity imported decreased 36 percent. Portland cement retarder and agricultural gypsum were off 17 percent and 25 percent, respectively.


endurance test record **PROOF:**

● Every belt tested had an equal chance to perform. It was a primary crusher installation at a large Southern quarry. A tough job, and, an important one, because a breakdown here meant work stoppage in the entire plant. Performance of ordinary belts varied. Some lasted longer than others, but not one approached the record made by Republic's EXCELO Elevator Belting. This rugged belt outlasted all the others. It worked steadily for a two-year period without a single breakdown. It required less maintenance, showed less signs of wear, did far more work at less cost than was previously thought possible! Republic Elevator Belts chalk up performance records like this everywhere they're used. Republic Elevator Belts are expertly matched to your job by local men who really know your specific problems. So, don't gamble on results. It costs less to use the best . . . REPUBLIC ELEVATOR BELTING!!

*Republic builds toughest Elevator Belts going*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Outstanding source for all products of Industrial Rubber. Write us today for the name of your local Republic Distributor who will keep you posted on new developments of interest to your business.

**REPUBLIC RUBBER DIVISION**

LEE RUBBER & TIRE CORPORATION, YOUNGSTOWN 1, OHIO

INDUSTRIAL RUBBER PRODUCTS

# trade notes

The appointment of John W. Brophy as works manager, and Otto H. Eberlein as factory manager of the Cleveland Diesel Engine Division, General Motors, has been announced.

The Syntron Cleveland Sales Company, representing and selling the line manufactured by the Syntron Co., Homer City, Pa., have opened a new store at 2919 Carnegie Avenue, Cleveland 15, Ohio.

**Electric Screen Heating for BIGGER TONNAGES of Lime, Ag-Lime, Silica Sand**

The Leahy No-Blind Vibrating Screen equipped with FlexElex produces substantially bigger tonnages in damp, fine mesh screening.

FlexElex electric heating keeps the wires warm and dry, preventing build-up and eventual glazing of the mesh by damp fines.

To this, add Leahy Differential Vibration that snaps loose intermediate size wedging particles, and you have **wide open mesh** for full capacity production on long, non-stop work schedules.

Users are reporting that FlexElex pays for itself in less than a year's time. Send for Bulletin 15-J and operating experience data.

The DEISTER CONCENTRATOR COMPANY

*The Original Deister Company, Inc. 1906*

**911 Glasgow Avenue, Fort Wayne, Indiana**


Frank E. Briber Jr. has been named manager of Allis-Chalmers newly formed Crushing, Milling & Mining Machinery Section, according to announcement. He was formerly manager of the crusher section.

Other department appointments announced include R. C. Edwards as engineer-in-charge of research and development; N. E. Croft, sales engineer-in-charge of the crusher group; C. A. Rowland, sales engineer-in-charge of the rod and ball milling group; E. M. Bolstad, sales engineer-in-charge of miscellaneous mining equipment and co-ordinator of projects for the mining industry; D. F. Carlson, product engineer of the pyro-processing section; and A. J. Roubal, special engineer.

Appointment of Fuchs-Clayton Machinery Company, Omaha, Neb., as exclusive dealer of Hyster equipment in Nebraska and part of Iowa has been announced. The new dealership will supply sales, service and parts facilities in its area.

Establishment of a factory parts depot in Atlanta, Georgia, has been announced by Wooldridge Manufacturing Company, San Francisco, Calif., as part of a program to provide rapid parts replacements to owners and dealers throughout the Southeastern and Central States.

The new parts depot has been established in cooperation with Statham Machinery & Equipment Co., 671 Ford Place, Northeast, Atlanta, Ga.

Materials handling products of the Clark Equipment Company, Battle Creek, Mich., will be handled exclusively in Northern New Jersey by the Hull Equipment Company, Union, New Jersey, it was announced. The New Jersey territory is made up of Sussex, Passaic, Bergen, Warren, Morris, Union, Hudson, Hunterdon, Summerset, Middlesex, Essex and Monmouth Counties.

Located in a new plant at Monroe Street and Route 29, the Hull Equipment Company is an outgrowth of the 35-year-old Hull Construction Company. Partners in the business are Milton J. Hull, president, and his father Milton O. Hull. Harvey McNaughton is sales manager for Clark products.

Henry J. Petrie and David E. Ober have been assigned to the New York district office of Allis-Chalmers general machinery division, according to an announcement.

Industry Services, Inc., 332 South Diamond Street, New Orleans, La., has been appointed distributor for Baker Industrial Trucks in the Delta States area.

John J. O'Neill Jr., has been appointed manager of the Research and Development Department of the Explosives Division, Olin Industries, East Alton, Ill.

Chase Bag Co., has announced the promotions of Ralph Farnham to southern promotion manager, and James F. Floyd to salesman in the Orlando district.

Irving August, formerly superintendent of Worthington Corporation's Denver, Colo., plant has been appointed assistant to the works manager of the Holyoke, Mass. plant, according to an announcement. Mr. August has been succeeded by Merril Berman as superintendent of the Denver plant.

J. Bemis

H. J. Wehrenbrecht

The appointment of Judson Bemis as director of central operations and of H. J. Wehrenbrecht as director of southern operations has been announced by the Bemis Bro. Bag Co. Mr. Bemis formerly was manager of the company's Minneapolis bag factory and sales division, and Mr. Wehrenbrecht was manager of the New Orleans plant and sales division.

V. H. Watts

O. M. Smith

O. M. Smith will succeed Mr. Bemis as manager at Minneapolis, and Mr. Wehrenbrecht will be succeeded at New Orleans by V. H. Watts.

The positions filled by Messrs. Bemis and Wehrenbrecht are newly created, being part of a reorganizational program to integrate the company's operations into geographical units.

Mr. Bemis will be charge of the company's bag factories and sales divisions in St. Louis, Indianapolis, Kansas City, Wichita, Omaha, Minneapolis, and Chicago, as well as the bag factory and paper mill in Peoria, Ill.

Mr. Wehrenbrecht will be responsible for the bag factories and sales divisions in Memphis, Houston, New Orleans, Mobile and Jacksonville, Florida.

National Bearing Division of American Brake Shoe Company today announced the appointment of Albert L. Hunt as manager of industrial sales.

The appointment of David Lewis as sales manager of Fruehauf Trailer Company has been announced.

Mr. Lewis will be in charge of the decentralization program currently being carried out at the Fruehauf branches. In addition, his duties will include the setting up of a new home office sales organization.

Walter J. Lee, assistant general manager of The Goodyear Tire & Rubber Company's Rim Division, has been promoted to general manager of the division.

The announcement, made by Joseph G. Swain, general manager of the division, who will continue as consulting manager.

E. E. Foster

Chase Bag Company, Chicago, Ill., has announced the appointment of Edson E. Foster as advertising and sales promotion manager. Mr. Foster was with the Illinois Bell Telephone Co., the United States Navy, and the Kemper Insurance Co., prior to his appointment with the Chase Bag Company.


SLY PIONEERS & LEADERS in INDUSTRIAL DUST CONTROL

Typical Sly Dust Filter in a cement plant

In April 1948, a leading cement manufacturer installed an automatic-continuous Sly Dust Filter to ventilate four cement finish mills.

This filter is responsible for saving approximately $100, or 50 barrels of cement per 24-hour day. It has been in operation since installation without repairs.

Thus, this installation paid for itself in much less than a year. It is typical of the savings being made by SLY Dust Filters.

If you will tell us your dust problem, we shall be glad to estimate what you can save.

THE W. W. SLY MANUFACTURING CO.

4745 TRAIN AVENUE • CLEVELAND 2, OHIO

New York • Chicago • Philadelphia • Syracuse • Detroit • Buffalo
Cincinnati • St. Louis • Minneapolis • Birmingham • Los Angeles • Toronto

G. S. Fabel

T. J. Ellis

George S. Fabel, formerly vice-president, has been elected president of the Thermoid Company, Trenton, N. J.

He succeeds Fred E. Schluter who remained on the board of directors after serving as president of the company since 1935. Mr. Schluter resigned the presidency in order to devote more time to outside interests.

T. J. Ellis, formerly factory superintendent at Trenton, N. J., was elected vice-president. He will direct rubber manufacturing activities at all of the company's plants. Mr. Ellis is a co-inventor of the bullet-sealing gas tank.

American Hoist and Derrick Company announced that James F. Bishop, in addition to his corporate duties of secretary-treasurer, has been appointed general manager. He is a veteran of 30 years' service with American Hoist, and has been secretary-treasurer since 1945.

The Thew Shovel Company, Lorain, Ohio, announces the elevation of two men to higher posts and the retirement of one of the company's officers.

R. B. Miller, secretary-treasurer and director of the company, will retire after having worked for Thew for forty-six years. He will retain his directorship.

Two officers of the company are being elevated to fill the posts left vacant when Mr. Miller retires. Harry L. Reynolds, currently assistant secretary-treasurer and personnel relations director, will become treasurer and Waid V. Clark, now controller, assistant secretary and director, will be controller and secretary of the company.

The Syntron St. Louis Sales Company, who sell Syntron products in the St. Louis area, announced the opening of a new store at 4431 Manchester Avenue, St. Louis 10, Missouri.

M. C. Meyer

Myron C. Meyer has been promoted to manager, wire braid hose sales, for the Republic Rubber Division, Lee Rubber & Tire Corporation, Youngstown, Ohio.

Mr. Meyer, in his new position, will direct the sales activities of the division's line of wire braid hose now being produced in a new $2,500,000 plant addition. He will have headquarters in Youngstown.

M. B. Beline has been appointed to the post of director of national accounts, Quaker Rubber Corporation, Division of H. K. Porter Company, Inc., Philadelphia, Pa., it was announced recently.

Mr. Beline has been with the company in the Washington, D. C., office. In his new position, he will coordinate the activities of Quaker's field personnel with the factory to provide the fullest assistance on preliminary engineering, specifications, and service to national accounts and the government.

J. D. Greensward was named vice-president, director of manufacturing, general machinery division, for the Allis-Chalmers Manufacturing Company at a meeting of the board of directors recently. As director of manufacturing for the division he succeeded Fred Mackey, who resigned as vice-president in charge of manufacturing. Previously Mr. Greensward was general manager of the Allis-Chalmers Norwood, Ohio, Works.

P. F. Bauer has been named general manager of the Norwood Works and manager of the firm's apparatus department, succeeding Mr. Greensward.

The Rogers Iron Works Company, Joplin, Mo., has announced the appointment of M. R. Lange as distributor sales manager. Prior to his employment by Rogers, Mr. Lange was assistant sales manager for Lippmann Engineering Works. He will be in charge of all domestic and foreign distributor sales. V. H. Nixon, chief engineer of the Rogers Iron Works Company, will continue to be in charge of all sales of equipment directly to the mining industry.

American Brake Shoe Company has announced the election of Kempton Dunn as first vice-president, William B. Jordan as treasurer, and Robert Watts and Owen B. Cottle as assistant treasurers.

Mr. Dunn was formerly vice-president and treasurer. He is also a director of the company.

Mr. Jordan, who was formerly assistant treasurer, joined the American Brakeblok Division of the company in 1945. He became division comptroller and then was elected assistant treasurer.

Mr. Watts was formerly assistant credit manager, and Mr. Cottle was formerly assistant insurance manager.


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AUTHORIZED AIRCO DEALER

ONE call
ONE order
ONE invoice
For every welding and cutting need!

TAKE HARDFACING ALLOYS, FOR INSTANCE . . . Your authorized Airco dealer handles more than twenty types of hardfacing rods — to combat abrasion . . . impact . . . heat . . . corrosion. Every type of wear problem! He can show you how one application may add 2 to 25 times longer service life to new or worn parts.

Every item is backed by AIRCO's reputation . . . and delivered promptly to your door!

Whether you want to buy . . . or simply seek information, check your Airco dealer first! Consult your classified phone directory (under Welding Equipment and Supplies) . . . look for this famous sign.

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REPRESENTED INTERNATIONALLY BY AIRCO COMPANY INTERNATIONAL
Divisions of Air Reduction Company, Incorporated
Offices in Principal Cities

AT THE FRONTIERS OF PROGRESS YOU'LL FIND AIR REDUCTION PEOPLE

C. R. Sare

Carl R. Sare, formerly assistant to the president of the Patterson Foundry & Machine Co., East Liverpool, Ohio, has been elected vice-president of The W. W. Sly Mfg. Co.

Mr. Sare attended the University of Pittsburgh and Penn State Extension College. He was employed by Jones & Laughlin Steel Corp. in Pittsburgh before joining Patterson. With Sly he will be primarily concerned with promoting dust filter sales.

R. G. Caldwell

The appointment of Robert G. Caldwell as district manager of the Gardner-Denver Company branch office in Atlanta, Ga., has been announced. He succeeds H. G. Little, who has bought an interest in the Central Machinery Company, Miami, Fla., a Gardner-Denver distributor.

Mr. Caldwell has been associated with the Gardner-Denver Company for the past twelve years, ten years as a salesman at the Houston Branch Office and, for the past two years, as resident salesman at Corpus Christi, Texas.

LINATEX Corporation of America, Rockville, Conn., has announced the appointment of Howard Toncray II as representative in the Rocky Mountain States.

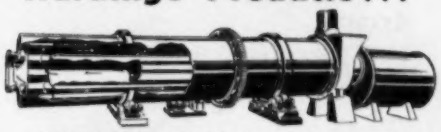
Mr. Toncray attended the University of Colorado, and formerly was general manager of the Denver Equipment Company, Colorado Springs Plant.

J. H. Gill

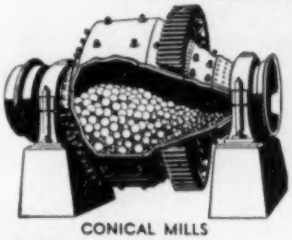
The appointment of Jack H. Gill as assistant manager of the Industrial Division in the General Sales Department has been announced by Caterpillar Tractor Co., Peoria, Ill.

Mr. Gill is a graduate of Texas A. & M. At Caterpillar he has been employed as an engine representative in the Central Sales Division, as a field representative in the engine sales department and, just prior to his most recent appointment, he was an engine sales consultant in the general sales department.

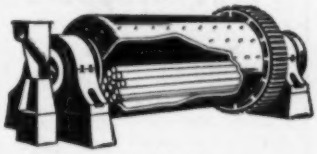

**Hardinge Products . . .**



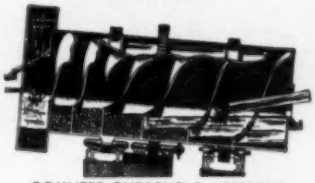
RUGGLES-COLES DOUBLE-SHELL ROTARY DRYERS



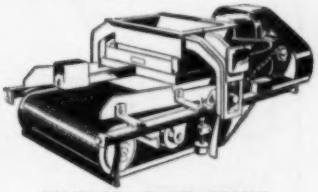
CONICAL MILLS



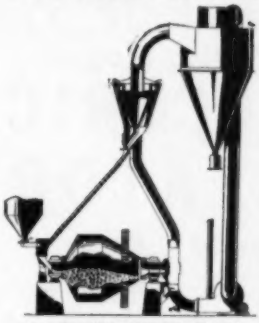
ROD MILLS



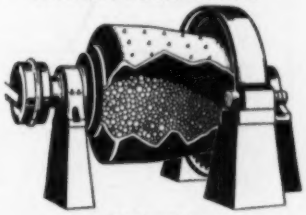
COUNTER-CURRENT CLASSIFIERS



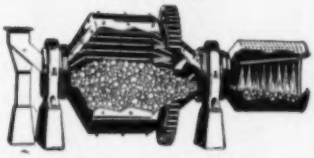
CONSTANT-WEIGHT FEEDERS



AIR CLASSIFYING SYSTEMS

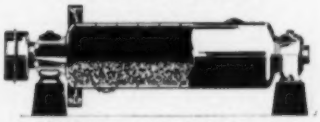


TRICONE MILLS



CONICAL SCRUBBERS

THICKENERS - CLARIFIERS



CYLINDRICAL, TUBE & BATCH MILLS

RUGGLES-COLES SINGLE-SHELL ROTARY DRYERS

HARDINGE
COMPANY, INCORPORATED

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*Free-Flowing*

**Bins, Hoppers and Chutes with**

*Pulsating Magnet*

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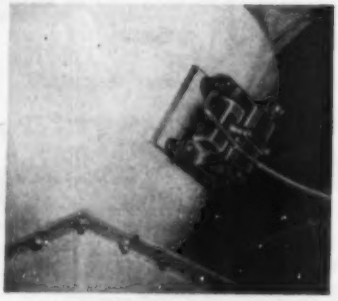
*With Variable Control of Power*



**Applied to —**

**Hoppers:** Conical; Rectangular; Parabolic; with Sloping Discharge; Vertical Side; Metal; Concrete; Wooden.

**Bins:** Rectangular; Cylindrical; with Flat Bottom and Center Discharge; with Hopper Bottoms.

**Chutes:** Inclined; Varied Shapes and Sizes.

NO unscheduled stoppage due to material arching and plugging. Syntron Electric Vibrators work faster, easier and better than the time consuming, damaging method of hammering and prodding to open clogged bins.

The right size Syntron Vibrator properly applied sets up a flow of high speed vibrations that cause even the most stubborn materials to flow freely.

When writing for information give the size, volume and wall thickness of your specific bins, hoppers and chutes, and material characteristics. We'll be glad to submit our recommendations.

**Write Today for Your FREE Catalog Folder.**

**SYNTRON COMPANY**

385 Carson Avenue — Homer City, Penna.


William O. Springer has been appointed manager of the New York plant of Joseph T. Ryerson & Son, Inc., steel distributors. He formerly managed the company's Cleveland plant.

James M. Mead, whom Mr. Springer replaces at New York, is moving to the executive offices at Chicago for special administrative duties. John W. Queen, formerly alloy steel division manager at Chicago, has succeeded Mr. Springer at Cleveland.

**G. E. Connolly**

George E. Connolly, vice-president of the Nichols Engineering & Research Corp., 70 Pine Street, New York, N. Y., died suddenly at his home in New York City, October 17th. Mr. Connolly had a varied and comprehensive experience in the design, construction and operation of multiple hearth furnaces. He joined the company in 1943 as vice-president in charge of the Industrial Division of that company. He was granted many patents covering design, improvements of roasting, calcining and drying in multiple hearth furnaces and was responsible for many adaptations of the Nichols Herreshoff and Bethlehem Wedge furnaces to accommodate special requirements, processes and materials in a wide variety of fields.

Election of William E. Buchanan, president and treasurer of the Appleton Wire Works, Inc., of Appleton, Wis., to the board of directors of Allis-Chalmers Manufacturing Co. has been announced.

Mr. Buchanan fills the vacancy created recently by the resignation of Edmund Fitzgerald of Milwaukee, president of the Northwestern Mutual Life Insurance Co.

Harry C. Davis, general manager, Kanawha Manufacturing Co., Charleston, W. Va., has been elected president of the Conveyor Equipment Manufacturers Association, according to G. Walter Ostrand, Chicago, Ill., retiring president. R. C. Sollenberger, for many years the staff head of the organization, was re-elected executive vice president.

Other new officers are: R. F. Tomlinson, general sales manager, The Oliver Corporation, A. B. Farquhar Division, York, Pa., vice-president; Jervis C. Webb, executive vice-president and general manager, Jervis B. Webb Co., Detroit, Mich., treasurer; and Fred S. Wells, vice-president, Stephens-Adamson Manufacturing Company, Aurora, Ill., secretary.

Elected as directors are: J. A. Jeffrey, vice-president, Jeffrey Manufacturing Co., Columbus, Ohio; Lee Sekulski, sales manager, Mathews Conveyor Company, Ellwood City, Pa., and R. B. Maas, president, Screw Conveyor Corporation, Hammond, Ind.

The American Cyanamid Company has announced that the Explosives Division and the Calco Chemical Division have been merged. R. E. Wiley formerly manager of the Explosives Division has been named consultant to the general manager of the Explosives Department. G. C. Holton who has been assistant general manager of the Explosives Division will become manager of the Explosives Department.

C. B. Foster

C. B. "Charlie" Foster has been appointed to the newly created position of sales manager — engines for Cummins Engine Company, Inc., Columbus, Ind., according to an announcement.

He will continue to be in charge of all Government contract work and, in addition, will take over the duties of the position of manager—Engine Sales.

Harlowe Hardinge, president of Hardinge Company, Inc., York, Pa., was re-elected a director of the Pennsylvania State Chamber of Commerce at the annual meeting. This is the third consecutive term to which he has been elected.

G. E. Jennings

The appointment of George E. Jennings as west coast district manager for the Davey Compressor Company, Kent, Ohio, was announced recently.

Mr. Jennings will be in charge of company operations in California, Oregon, Washington, the cities of Reno and Carson City, Nevada; Yukon Territory, Alaska and the Province of British Columbia, Canada. His headquarters will be in San Francisco.

C. E. Jarchow

Christian E. Jarchow, executive vice-president and comptroller of the International Harvester Company, was elected a director of Poor & Company at a meeting of the board recently. He fills a vacancy created by the recent death of Averill Tilden.

Henry W. Willard has been appointed factory manager of United States Rubber Company's Passaic (N. J.) plant, succeeding William C. Bowker, who has retired.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Made in 4 sizes. Capacity up to 100 T.P.H.

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# Legal decisions

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

During September the writer visited several Western states, and talked personally with many owners, operators, and employees in plants which produce and sell nonmetallic products. It is true that few of these persons take necessary precautions to avoid expensive law suits, but readers displayed considerable interest in accumulating legal knowledge on various important points of the law, and they asked many legal questions. Recently I answered some of these questions. The following answers, based upon leading higher court decisions, involve different law and will assist readers to prepare to win law suits.

### Explosion Law Suits

Many readers displayed special interest in avoidance of damage allowances in explosion law suits. Hence, for the benefit of these readers I shall review unusual higher court decisions on explosion law rendered this last month.

One usual question was: "What testimony must be given by the complaining property owner to justify a court to award damages?"

The answer is: The jury may decide that a property owner is entitled to recover damages after listening to relevant testimony, including circumstantial evidence, which tends to prove that the injury was caused by negligence of the company which set off the explosion.

For example, in *Stand v. Giles*, 197 Fed. (2d) 290, it was shown that a company's employee exploded a 50 lb. charge of gelatin explosive 686 ft. from a good water well.

The jury held the company liable in $3,175 damages to the owner of the well on the circumstantial evidence that the well going dry could not have been caused, under the circumstances, by anything but the explosion. The higher court approved the verdict.

### Relevant Testimony

Another question is: "Can a property owner recover damages for injury to his property by proving that blasting operations damaged other property?"

Last month a higher court decided this question in the affirmative. For example, in *Benson v. Weaver*, 250 S. W. (2d) 770, a building owner sued a company for damages to his concrete building alleged to have been caused by an explosion of dynamite.

In subsequent litigation the higher court held that the building owner was entitled to prove that the blast had damaged other nearby concrete buildings. In other words, testimony to this effect is sufficient to convince a jury that the blast caused injury and damage to all similar buildings in the immediate vicinity.

### Must Lock Up Explosives

A reader asked this question: "If the owner of a rock quarry fails to lock up explosives, is he liable for injuries to trespassers who find the explosives?"

The answer is: The owner of a quarry is not liable for injuries to adult trespassers, but he is liable for injuries to children.

For illustration, in *Kansas City v. Robinson*, 17 S. W. (2d) 977, an employe who was blasting rock negligently left dynamite caps in an unlocked basement room. Some children entered the basement and took the caps, not knowing the danger. Later one of them was seriously injured when a cap which he was holding in his hand exploded. His parents sued the employer, who attempted to avoid liability on the contention that the children were trespassers, and not lawfully permitted to enter the basement. How-

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ever the court held the child's parents entitled to heavy damages, saying:

"The dynamite caps were temporarily placed in the basement. The operators should not only have anticipated that immature children were likely to go to the unguarded and unlocked basement, . . . but they should especially have anticipated that immature children were likely to prowl thereabout and find the explosives negligently left in the basement."

### Law Of Safety Appliances

A reader asked the question: "What is the law on employers furnishing safety appliances to employees? Can an employee recover damages for an injury caused by failure of his employer to furnish him a safe working place, safety devices, appliances, etc.?"

The law is well established that it is the legal duty of an employer to provide as "reasonably" safe working place as the circumstances will permit. Furthermore, the employer is legally bound to know that the premises, machines, tools, and appliances are free from apparent defects which are likely to cause injury to the employees.

On the other hand, an employer is not an "insurer" against injuries sustained by his employees. If it can be shown to the satisfaction of the court that an injured employee was negligent in not taking the proper precautions to protect himself against injury, or that the danger was readily apparent to the employee, the employer is not liable in damages.

This phase of the law was thoroughly considered by a higher court in the recent case of *Richardson v. Southern Surety Co.*, 139 S.E. 938. In this case an employee who was engaged in loading rock in a quarry was instructed by his foreman to burst large rocks with a sledge hammer furnished him for that purpose. When he struck a large rock with this hammer, a piece of the rock flew up and hit him in the eye.

The employee sued for the damages, alleging that the employer failed to furnish him with goggles or a wire screen for the purpose of protecting his eyes and that such failure or negligence caused the injury and rendered the employer liable.

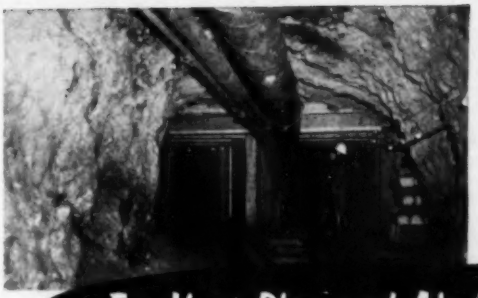
However, the court held the employer not liable, because the danger of breaking rock without eye protectors is readily apparent to all workmen who therefore are contributorily negligent in subjecting themselves to the known hazard. The court said:

"Upon the facts of this case, it cannot be held that it was the duty of the defendant (employer) to furnish such goggles or with screens to plaintiff (employee) for his protection while engaged in the work for which he was employed."

### New Income Tax Law

A reader asked: "What items may I deduct from my gross income when filing my Federal income tax returns?"

The answer to this question is important to all readers. Hence I shall state exactly what to deduct and what evidence or proof is necessary in order that the Commissioner of Internal Revenue will approve the deductions. Remember: If

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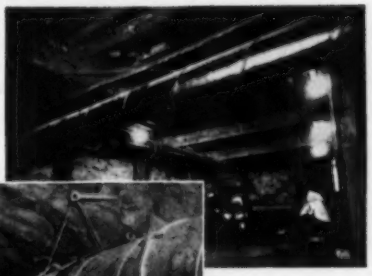

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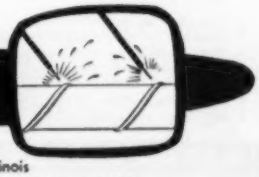

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a taxpayer fails to keep proper book records, deductions will not be approved.

Therefore the taxpayer should keep all bills so that he can prove that the money he deducts from his gross income actually was spent. Also, a book should be kept for reference purposes if and when the agent of the Internal Revenue Department calls you into his office or comes to your office to inspect your records.

Any person, whether an individual or business person, can deduct from his gross income various charitable contributions, also gifts to religious, educational, and fraternal organizations if the latter will use the gifts for charitable purposes. A taxpayer may deduct all taxes paid to the state, such as taxes paid on the home he lives in, and not used for business purposes; taxes on personal property and chattels; and all other taxes paid to the state. But a taxpayer may not deduct any federal taxes such as paid on telegraph or phone service, furs, jewelry, and other excise taxes. Also, you may deduct interest paid on a mortgage on your home, and on your personal loans, and other debts. You may deduct all "sudden" losses from casualties as fire, theft, storm, explosions, etc. Also, you should remember that the cost of all clothing, gloves, special equipment, etc., used especially in the business are lawful deductions. A taxpayer who leaves his home over night for purposes of business may deduct his travel, hotel, and meal expenses. However, if he does not stay over night he may not deduct expenses for meals, but he may deduct the traveling expenses. Most important, no taxpayer may deduct his traveling expenses from his work or office to his home. He may not make such deductions although he lives in one city and works in another.

### Don't Change Courts

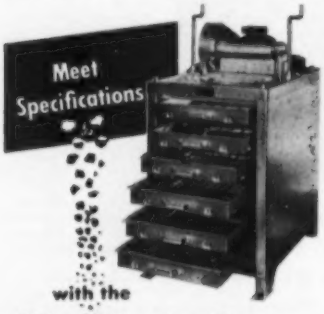
Recently a higher court rendered an outstanding decision to the effect that a federal court will not assist a litigant who first filed his suit in a state court.

For example, in *Birch v. Utah-Idaho Concrete Pipe Company*, 96 Fed. Supp. 344, the testimony showed facts as follows: One Birch sued the Utah-Idaho Concrete Pipe Company for damages.

Birch alleged that the company removed from property owned by Birch 24,398 tons of pumice and that this removal was unlawful. This suit was filed in a state court. Later Birch decided to abandon his suit in the state court and he filed a suit in the federal court. The federal court refused to render a favorable verdict for Birch, saying:

"Plaintiff, Birch, certainly cannot use this court and have this court say whether or not the state court erred, and if so, in what respect."

For comparison, see *Mogis v. L.R.S.G. Corp.*, 190 Fed. (2d) 202. In this case a suit was filed in a federal court against the L.R.S.G. Corp. to recover undercharges arising by reason of the fact that it had not paid freight rates consonant with the rates promulgated by Nebraska State Railway Commission.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The federal court held that a federal court may if it so desires decide validity of state laws whenever necessary in order to the rendition of a just judgment.

### No Allowance For Tools

Recently a reader asked this legal question: "Can a contractor charge a property owner for use of his tools and equipment when doing a job under a cost-plus contract?"

A late higher court decision answered this question in the negative. For illustration, in *Michelson v. House*, 218 Pac. (2d) 861, the testimony showed that a contractor contracted to perform work on a 10 percent cost-plus basis. He installed on the premises certain machinery and equipment for "efficiently" doing the work. The property owner refused to pay the contractor 10 percent of the cost of these various items of equipment, and the contractor filed suit. He argued that he was entitled to this 10 percent payment because he had saved the property owner considerable money and expense by using the equipment. Nevertheless, the higher court refused to allow 10 percent on these tools and equipment, and said:

"The appellant (contractor) was required to furnish the necessary equipment for the work at hand. The claim was a part of the overhead. . . ."

### Owner Liable To Seller

According to a late higher court decision, a property owner automatically breaches an installation contract and is liable in damages to the contractor if such owner does any act detrimental to the contractor and not clearly authorized by the contract.

For example, in *Guidry v. Miller*, 47 So. (2d) 721, the testimony showed that a contractor and a property owner named Miller signed a contract by which the contractor agreed to perform work for Miller for an agreed price. After the contract was signed, Miller insisted upon the contractor furnishing a performance bond, which was not called for or mentioned in the original contract. Miller explained that he had forgotten to include this clause in the contract.

In subsequent litigation the higher court held Miller liable in damages to the contractor. This court held that Miller had breached the contract by insisting that the contractor furnish a performance bond, a condition which was not specified in the original contract.

Therefore, it is quite apparent from this judgment, recently rendered by a higher court, that either a contractor or a property owner may be liable for breach of a contract by any slight or technological breach.

### False Representations

A higher court was asked to decide this question: "If a contractor signs a written contract to perform work at a named price, is a verbal contract valid by which the owner agrees to pay a higher price?"

A recent higher court held that the oral contract is valid, if fraud is not involved. Otherwise the written contract remains valid.

For illustration, in *Messick v. Smith*, 69 Atl. (2d) 478, it was shown that a


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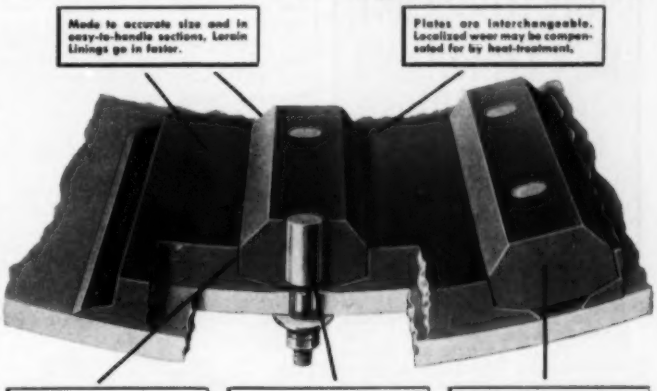
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Accurate fit of lift bars and tight joints between plates eliminate shell wash.
Support for bolt head located near bottom of bar . . . bolts are effective for life of lining.
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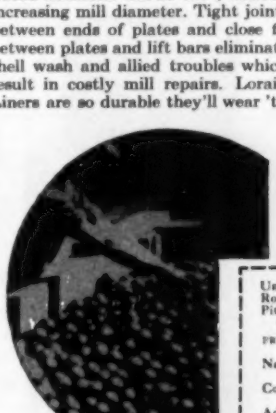

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property owner made a written contract with a contractor named Smith by the terms of which Smith agreed to perform labor and furnish materials for $7,750.

Later the contractor presented a bill to the property owner for $12,731, claiming that the written contract was signed merely to give Messick an opportunity to obtain priorities on materials needed and that it was verbally agreed that the work was to be done on the time and cost basis. The property owner testified that at no time did he agree to pay Smith more than $7,750 specified in the written contract and that he did not verbally agree to pay Smith on the "time and cost" basis.

The court held that Smith could recover nothing more than the contract price specified in the written contract. This court said: ". . . . To permit the plaintiff (Smith) to recover on a contract performed by means of priorities obtained by false representation, in which plaintiff actively participated, would be contrary to the true interpretation and application of the controlling federal legislation and regulations."

### Need Not Fence Excavation

Recently a higher court was asked to decide this very important question: "Is a contractor legally obligated to fence or barricade a hole or pond to protect adventurous and trespassing children?"

For example, in *Holifield v. Wigdor Company*, 235 S. W. (2d) 564, the testimony showed facts as follows: There was a good deal of rainfall after a pond was dug by a plant owner and soon the pond was "brimful of water."

One day a small boy entered the water-filled excavation and was drowned. The parents of the boy sued the plant owner for heavy damages. In holding the latter not liable, the higher court said:

"At most, the failure to place a fence or barricade around the hole was no more than 'mere casual negligence.'"

### Offer and Acceptance

It is well established law that if a contractor breaches a valid contract of sale, the property owner may sue and recover full damages amounting to his loss resulting from the contractor's breach. However, a contractor never is liable on a contract, although he breaches it, unless the evidence clearly indicates that either the contractor or the property owner accepted an offer submitted by the other party, which resulted in a valid contract.

In other words, if a contractor offers or makes a proposal and the property owner accepts this offer unconditionally, then a valid contract is completed. If, however, the property owner does not accept the offer unconditionally, but makes a new offer, then in order that a valid contract is completed, the contractor must accept the new proposal unconditionally.

For example, in *Kemble v. Hansen*, 37


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Pac. (2d) 1003, it was shown that a property owner's agent named Lovejoy had some conversation with an official of a corporation which desired to lease the gravel rights on certain property. Lovejoy wrote the official and submitted a proposition. The official answered stating that the offer was "acceptable," but he concluded with a paragraph which deviated from the original offer.

In subsequent litigation the higher court held that no valid contract was made because the original offer was not unconditionally accepted.

### Independent Contractor

A reader asked this question: "I operate a sand-and-gravel plant and want to know if I can hire a truckman to haul my materials and yet not be liable in damages if he gets injured, or injures others. If I hire a truck owner and pay a flat price for each load, does this arrangement protect me?"

According to a late higher court decision, the answer is no, if you have *control* over the truck owner. The term "independent contractor" means any person who renders service for an employer *without* the latter having control over the employe, except that the work is done properly.

For example, in *Nesmith v. Reich Brothers*, 14 So. (2d) 325, it was shown that Reich Company made a contract with a truck owner to haul and deliver limestone rock from a pit. Under this employment contract the truck owner was to furnish his own truck, buy oil, gas, etc., and pay for it himself. He was paid a specified price per cubic yard for rock transported. The truck owner was not obligated to haul any specific quantity of rock each day, *but he was under control* of Reich and performed his duties strictly as directed by Reich, and he had to haul exclusively for Reich.

One day the truck owner was seriously injured, and he sued Reich to recover compensation. Reich contended that the driver was an independent contractor and was therefore not entitled to receive compensation. However, the higher court considered all of the above facts and held that the driver was an ordinary employee and therefore entitled to recover compensation, saying:

"The undisputed facts of the case negate the idea that plaintiff (injured driver) was an independent contractor as regards his contractual relations with and duties to his employer. He was under the control of his principal as to the means and methods by which the work was to be accomplished."

This court explained further that a truck owner is an "independent contractor" if he hauls materials at a specified price per load or cubic yard, and the employer has no control over the truck owner except to instruct him when and where to make deliveries.

For comparison, see *Western Company v. State*, 284 Pac. 304. Here it was disclosed that an employee was employed to operate a drill at a quarry. He was paid $1.25 per foot for each hole drilled. The employer furnished the machinery and equipment. One helper was employed


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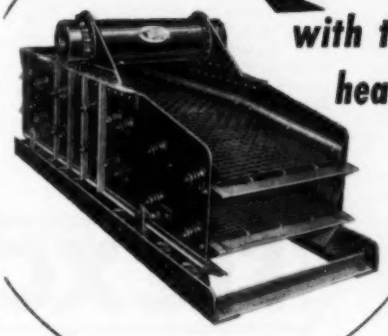

Herbert Sand Company of Milltown, New Jersey, installed one of the first new triple deck 4' x 12' Deister, type UHS, Heavy-Duty Scalping Screens. The screen is producing up to 120 tons of sand and gravel per hour in five sizes in a wet operation—using 2,000 gallons of water per minute. With the new Deister UHS, production has increased substantially and sand quality is better than ever before . . . with a greater percentage of grits for a stronger sand demanded in this highly competitive area.

Mr. Herbert says "The vibrating mechanism is mounted high enough to stay dry during a rugged, wet operation such as ours . . . away from wear and abrasion."

An analysis of your own operation may prove the new Deister UHS will step up your production . . . and quality . . . and *profits*. Write for Bulletin 54 . . . and a data sheet . . . today.

Here's why users like it!

1. Life-time unitized vibrating mechanism . . . a precision-built, jig-assembled unit. Two bearing construction. Runs in bath of oil. Renewable sleeves and bearings.

2. Opposed elliptical throw . . . Deister's exclusive powerful throw action controls the movement of material on the screen for greatest speed and efficiency in sizing.

3. Divided screening sections . . . identical in size, may be readily interchanged or shifted to distribute normal wear and prolong life of screening medium. Different size openings may be used with each section, allowing up to 3 sizes on each deck.

4. Sizes . . . 3', 4' and 5' widths; 10', 12' and 14' long and in single, double and triple deck models.

DEISTER SCREENS

DEISTER MACHINE COMPANY
FORT WAYNE 4, INDIANA

by the employer, but his pay was deducted from the $1.25 per foot. The employer did not direct the employee as to his hours of work, when he should quit, or when he should commence.

One day, while the employee was moving the drilling machinery from one location to another, he was injured.

In holding the employee not an independent contractor and therefore entitled to compensation, the court said:

"The employee was under the direction of the company (employer) as to when and where to move the machinery; that is, when a hole had been drilled to the depth required by the company, the company's foreman directed where the machinery should be moved to next. And it was in this particular work that the employee was injured. . . We think it is immaterial whether the employee was paid by the hour, day, or by the foot for his work."

---

The Clark Equipment Company announced the appointment of the Towne Industrial Equipment Company, Inc., Dallas, Texas, as authorized dealer in 129 Texas counties.

The Towne Industrial Equipment Company, 1410 S. Akard Street, Dallas, has been engaged in the sale of materials handling equipment since 1948, Fred T. Towne is president, and Ernest Taylor, Jr., sales manager.

American Wheelabrator & Equipment Corp., Mishawaka, Ind., has announced that its district office in New York City has been moved to 53 Newark Street Bldg., Hoboken, N. J.

Shareholders of the Federal Motor Truck Company, Detroit, and the Fawick Airflex Co., Inc., Cleveland, have approved the merger of the two companies.

The new company, to be named Federal Fawick Corporation, will establish executive offices in Cleveland and will have operating divisions in Detroit and in Cleveland.

Thomas L. Fawick, founder and president of the Fawick Airflex Co., Inc., will be chairman of the board and chief executive officer, and Richard S. Huxtable, Fawick executive vice president and general manager, will be president of Federal Fawick and continue as general manager of the Cleveland Division.

George H. Hammond, president and general manager of Federal Motor Truck Company, will become executive vice president of the new corporation and general manager of the Detroit Division. Joseph B. Newman, secretary and treasurer of Federal, will be treasurer and assistant secretary of the merged companies. Charles W. Steadman, secretary of Fawick and a partner in the law firm of Marshman, Hollington and Steadman, will be secretary and Frank J. Mack, treasurer and assistant secretary of Fawick will become assistant secretary and assistant treasurer of Federal Fawick Corporation.

# FASTER SCREENING

## lower processing costs

For a few cents an hour, the Hanco Electric Screen Heater heats woven wire screens to

- speed screening of moist materials
- prevent blinding
- make it easier to meet specifications for fines
- eliminate cleaning labor
- eliminate screen wear due to cleaning abuse and extra weight of clogged screens.

Quick-Change Attachment for easy screen changes

- Distribution bars make direct contact with cloth eliminating current loss suffered when skirtboard is part of circuit . . . weak or broken circuits due to rusting.
- Distribution bars and insulations shielded from abrasion.

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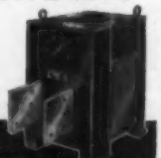

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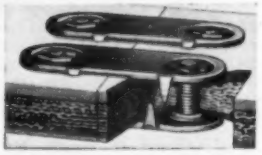

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# traffic news

### CENTRAL TERRITORY RAILROADS FREIGHT TRAFFIC COMMITTEE

**Docket 89210 (1)**—Proposed to establish an agricultural limestone, unburned, in bulk, in open-top cars or agricultural limestone, screenings, in bulk, in open-top cars, carloads, minimum weight 90 percent of the marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Carey, Ohio, to stations in Ohio, shown in exhibit below:

| TO | Rates in Cents per ton |
|---|---|
| Tiro | $1.40 |
| Carrothers | 1.32 |
| Bellevue | 1.46 |
| Kimball and Genoa | 1.53 |
| Centerburg and Milan | 1.58 |
| Alexandria and Paulding | 1.71 |
| Johnstown and Vermilion | 1.65 |
| Ellis, Fair Oaks, Kent, Peninsula and Valley Jct. | 1.89 |
| Freedom, Leavittsburg, New Philadelphia, Oneida and Salem | 2.01 |
| Adena, Barnesville, Greenford, Hammondsville, North Jackson, Quaker City, Roxbory, Stewart, Torch Hill, Haseltón, Leetonia, Maynard and Toronto | 2.13 |
| Neffs | 2.26 |

**Docket 89238 (2)**—Proposed to establish on crushed stone, crushed stone screenings and crushed stone tailings, in open-top cars only, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full visible or cubical capacity, actual weight will apply, as follows:

RATES IN CENTS PER NET TON

| TO | From Carey, Ohio | From Rimer, Ohio |
|---|---|---|
| Beaver, Ohio | 213 | 226 |
| Fosters, Ohio | 201 | 226 |

**Docket 89241 (1)**—Proposed to establish on slag, crude, granulated, crushed, or commercial (a product of iron and steel furnaces), in bulk, in open-top cars, in straight or mixed carloads, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply, to Teays, Ohio, from Hamilton, Ohio, 201 cents, and Middletown, Ohio, 189 cents per net ton.

### GENERAL FREIGHT TRAFFIC COMMITTEE

**Eastern Railroads**

**Bulletin G-6795** (Increase) (Carrier)

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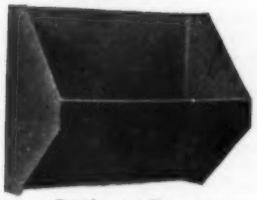

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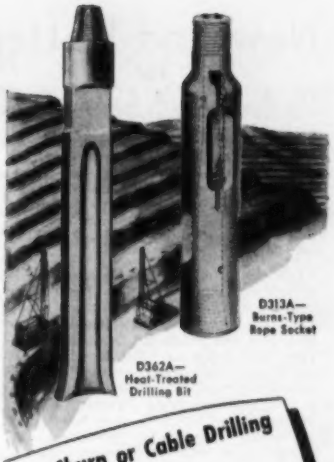


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Spang Churn or Cable Tools are top performers in their fields for drilling test holes when prospecting or sampling . . . drilling blast holes for fragmentation of minerals or overburden . . . drilling and reaming escape, dewatering and ventilating holes . . . and drilling wells for other purposes. Fifty years' experience serving oil, water-well, mining and quarrying operations assures their value.

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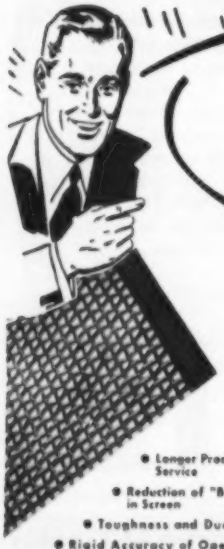

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—To correct the rate applying on calcium or lime, carbonate, not otherwise indexed by name in Official Classification, carload minimum weight 30 tons from Covington, Va., to Green Bay, Wis., as published in supplement 114 of Agent C. W. Boin's Tariff 37-G, ICC A-850 to read 54 cents per 100 pounds, in lieu of 51 cents per 100 pounds, subject to ExParte 175 increase.

**Bulletin G-6855** (Shipper) — Proposed to establish on rock, ganister, not ground, carload minimum weight 90 percent of marked capacity of car, etc., from Latrobe, Pa., to Braddock, Hays, Munhall, and Clairton, Pa., $1.32 per net ton (open-top cars) and $1.89 per net ton (closed cars) Donora, Pa., $1.46 per net top (open-top cars) and $2.08 per net top (closed cars), subject to ExParte 175 increase.

**Bulletin G-6858** — Proposed to establish on limestone, natural, ground or pulverized, unburned, carload minimum weight 30 tons to Candor, N. Y., from Bettsville, Carey, Genoa, Gibsonburg Luckey, McVitteys, Maple Grove, Marblehead, Martin, Narlo and Woodville, Ohio, $3.25 per net ton, subject to all increases. Rates named will also apply on limestone, ground or pulverized, when containing not in excess of 3 percent of other minerals either physically or otherwise added.

**Bulletin G-6869** — Proposed to establish on lime, common, hydrated, quick or slaked, carload minimum weight 25 tons, from Gillintown, Pa., to Lackawanna, Buffalo, Niagara Falls, and Suspension Bridge, N. Y., $4.35 per net ton; to Sharon and Farrell, Pa., Struthers, and Youngstown, Ohio, $4.53 per net ton; to Cleveland, Ohio, $4.91 per ton; to Middletown, Ohio, $5.82 per net ton; to Worcester, Mass., $6.84 per net ton, subject to ExParte 175-B increase.

**Bulletin G-6905** (Shipper) — To publish a rate of $5.79 per net ton as through specific commodity rate, in lieu of present $5.79 per net ton combination rate over E. St. Louis, Ill., on stone, fluxing, furnace, or foundry, melting or refractory, unburned, in bulk, carload minimum weight 90 percent of marked capacity of car, from Woodville, Ohio, and other Northwestern Ohio Group 1 origins to Sedalia, Mo., subject to ExParte 175-B increase.

**Bulletin G-6907** (Carrier) — Proposed to establish on limestone, natural, ground or pelverized (unburned), stone, screenings, crushed, not ground or pulverized (unburned) and stone dust (unburned), carload minimum weight 30 tons from Piqua, Ohio, to Nellis, W. Va., $3.10 per net ton, in open cars and $3.60 per net ton in closed cars, subject to ExParte 175-B increase. Rates named will also apply on limestone, ground or pulverized, when containing not in excess of 3 percent of other minerals either physically or otherwise added.

### NORTH PACIFIC COAST FREIGHT BUREAU

**Docket NC-2913** — Proposed to establish on limestone or dolomite rock, straight or mixed, carload, from Cooper,

Wash., 7½ cents per hundredweight to Seattle and 18 cents to Ellensburg, minimum 50 tons.

**Docket NC-2928** (S)—Proposed to establish rate on Silica Sand, in open cars, carload, Chewelah, Washington to Portland, Oregon 21 cents per hundredweight, minimum 30 tons and 19 cents per hundredweight, minimum 50 tons.

**Docket NC-2929** (S)—Proposed to request rate on rock, rough, quarried, carload, from Philipsburg, Mont., 35 cents per hundredweight to Spokane, Wash., and points taking same rates. Also 50 cents per hundredweight to Coast group, minimum 50 tons.

**Docket NC-2936** (S)—Proposed to establish on silica sand, carload, Troy, Idaho, to Portland, Ore., 21 cents per hundredweight, minimum 50 tons.

**Docket X NC-2945** (S)—Proposed to establish on silica rock, in open-top cars, carload, Springdale, Wash., to Vancouver, Wash., 15 cents per hundredweight, minimum 50 tons.

### PACIFIC SOUTHCOAST FREIGHT BUREAU

**Docket 3178** (S)—Proposed to establish on limestone, crushed, carload, from Luning, Nev., to San Francisco, 15 cents and Los Angeles, Calif., 21 cents, minimum 50 tons. Subject to X-162-68 and X-175 increase.

**Docket X 3214**—Proposed to establish on rock lime, in open cars Nelson, Ariz., to Kaiser, Calif., 15 cents, minimum 50 tons.

**Docket 3221**—Rock lime in open cars Bullard to Pittsburg, Calif., rate 8 cents per hundredweight, minimum 50 tons.

**Docket 3060**—Proposed to establish on gypsum, crude, crushed, ground, or powdered, carload, Winkelman to McNary, Ariz., alternate rates of 27 cents and 30 cents at minimum weights, 40 tons and 20 tons respectively.

**Docket 3230**—Request rate on lime, common, hydrated, quick or slaked, car load, Nelson to Hillside, Ariz., 15 cents, minimum 40 tons.

**Docket 3232**—Requested to establish on sand or gravel, carload, from Nash, Utah, to East Ely, $2.90, and Elko, Nev., $2.75, minimum 90 percent of marked capacity of car used, except that when car is loaded to full visible capacity, actual weight applies. Rates are per net ton and subject to X-162-6-8.

**Docket 3240** (S)—Proposed to request rates on gypsum, carload, Plaster City to Bartonnette, Calif., 23 cents in open cars and 24 cents in closed cars, minimum 20 tons.

### NORTH PACIFIC COAST FREIGHT BUREAU AND PACIFIC SOUTHCOAST FREIGHT BUREAU

**Docket JT 2253** (S)—Proposed to establish on rock, perlite, broken, crushed, or ground, dried or not dried, not expanded, carload, Dant, Ore., to Long Beach, Calif., rate 700 cents per ton 2,000 pounds, minimum 50 tons, except that when car is loaded to full space or weight carrying capacity, actual weight will apply, but not less than 40 tons.


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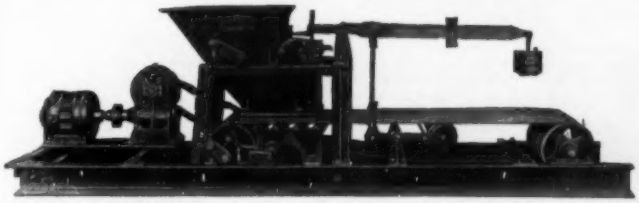

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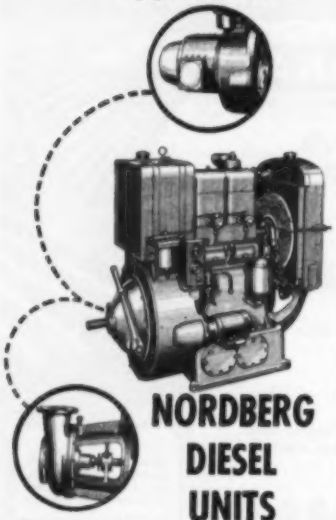

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### WEEKLY DOCKET AND STATUS REPORT OF PRIOR SOUTHERN FREIGHT ASSOCIATION PROPOSALS

**Docket A 12194**—Proposed to establish on gypsum, crude or crushed, in bulk, carload, 40 tons, Jacksonville to Dorena, Fla., 264 cents per net ton in open-top cars and 289 cents per net ton in closed cars, rates not subject to X-162-6-8.

### FREIGHT TRAFFIC COMMITTEE
**Trunk Line Territory Railroads**

**Docket TL M-2467** (Carrier)—Proposed to establish on limestone, crude, fluxing, foundry, and furnace, when loaded in bulk in open-top equipment, carload minimum weight 90 percent of marked capacity of car from Mill Lane, Pa., to Bethlehem, Fairless, and Chester-Marcus Hook, Pa., $1.36 per gross ton, subject to X-175 increase.

**Docket TL M-2468** (Carrier)—Proposed to establish on limestone, crude, fluxing, foundry, and furnace, when loaded in bulk in open-top equipment, carload minimum weight 90 percent of marked capacity of car from Mill Lane, Pa., to Swedeland, Pa., 70 cents per net ton, subject to X-175 increase. This is applicable only on traffic delivered to Upper Merion and Plymouth R.R.

**Docket TL M-2489**—Proposed to issue rate of 90 cents per net ton, subject to ExParte 175-B increase to meet motor truck competition on stone, natural (other than bituminous asphalt rock) crushed, not otherwise listed by name in Official Classification, in open-top cars, carload, minimum weight 90 percent of marked capacity of car from White Haven, Pa., to Wanamie, Pa.

### WESTERN TRUNK LINE COMMITTEE

**Docket E-41-1668** (S)—Proposed to establish on sand (other than road or building construction) in closed cars, minimum weight 30 tons, from Klevenville, Wis., to Milwaukee, Wis. (CMSTP&P deliveries), 197 cents per net ton, subject to X-175-B increase.

**Docket E-41-1671**—Proposed to establish on stone, crushed, minimum weight 90 percent of the marked capacity of car used except that when car is loaded to full visible capacity, actual weight will apply, but in no case less than 20 tons, per car from Gilmore City, Iowa, to Lincoln, Nebr., $2.35 per ton of 2,000 pounds, subject to tariff of increased rates and charges X-175-B.

### WEEKLY DOCKET AND STATUS REPORT OF PRIOR SOUTHERN FREIGHT ASSOCIATION PROPOSALS

**Docket A 11776** (c)—Proposed to establish a rate of 297 cents per net ton on limestone, agricultural, broken, crushed, ground or pulverized, carload described in item 440, Southern Freight Tariff Bu-


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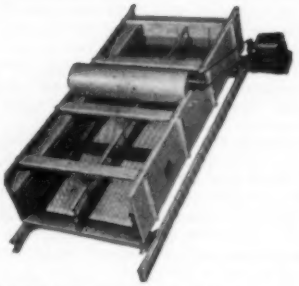

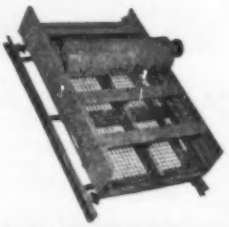

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RACINE — — WISCONSIN

reau 388-G, Mascot, Tenn., to Chilesburg, Ky., 297 cents net ton, not subject to X-162-6-8.

**Docket A 2066**—Proposed to establish on lime in bulk, carload, minimum weight 40 tons, Roberta, Ala., to Ivanhoe, Va., 581 cents net ton, not subject to X-162-6-8.

**Docket A 11914 (a)**—Proposed to establish on lime, in bulk, carload 40 tons, from Graystone, Landmark, Long View, Long View No. 2, North Birmingham Group, and Pelham, Ala., to Ivanhoe, Va., rate of 581 cents, not subject to X-162-6-8 increases.

**Docket A 11948 (c)**—Proposed to establish on limestone, ground or pulverized, in closed cars, carload 40 tons, from Tate, Ga., to Tamms, Ill., 414 cents per net ton, not subject to X-162-6-8.

**Docket A 11990 (c)**—Proposed to establish on gravel, carload, in open-top cars, minimum weight 90 percent of marked capacity of car from Georgetown, Miss., to Houston, Tex., 340 cents per net ton, not subject to X-162-6-8.

**Docket A 8837 (ERR (S)** C-Southwestern Freight Bureau-2110)—Dolomite, roasted, carload 50 tons, from Ohio points to Rio Grande Crossings, 42 cents per hundredweight.

**SOUTHWESTERN FREIGHT BUREAU**

**Docket 61916 (S)**—Proposed to establish on gypsum rock, Bucher and Southard, Okla., to Louisville, Nebr., 432 cents per net ton in open-top cars, and 464 cents per ton in closed cars or in open-top cars protected by tarpaulin or other protective covering, not subject to tariff X-162, 166, 168, minimum weight 90 percent marked capacity of car, except that when car is loaded to full visible capacity, actual weight will govern, but in no case will the minimum be less than 40 tons.

**Docket 61935 (S)**—Proposed to establish on plaster and related articles, Medicine Lodge, Kans., to Gene Autry and Smallwood, Okla., 24 cents.

**Docket 61988 (S)**—Proposed to establish rates on gypsum rock, Bucher and Southard, Okla., to Louisville, Nebr., of 410 cents per net ton in open-top cars, and 443 cents per net ton in closed cars or in open-top cars protected by tarpaulin or other protective covering, not subject to tariff X-162-166-168 minimum weight 90 percent of marked capacity of car, except that when car is loaded to full visible capacity, actual weight will apply, but in no case will the minimum be less than 40 tons.

**Docket 62153 (S)**—Proposed to establish on gypsum or gypsum rock, Lasca, Tex., to stations in New Mexico, following rates in cents per net ton, not subject to X-162-166-168, straight or mixed carloads, minimum weight 25 tons or 90 percent of the marked weight capacity of the car, whichever is greater:


**Eliminate 70% to 90% of Conveyor Downtime**

Cedarapids
Built by IOWA
MOTORIZED HEAD PULLEYS
eliminate maintenance on chains, belts, sprockets, Universal drives, countershafts, etc.

**EVERYTHING is contained INSIDE the pulley shell!**

HERE'S a money-saving departure from conventional conveyor drives. A Cedarapids-Schrock *Motorized* Head Pulley is simply a new application of the long-proven gear reduction drive, with everything . . . electric motor, reduction gears and all moving parts . . . contained inside the drum, completely protected from grit, dirt and weather and with no outside parts or motors to service. 70% to 90% of conveyor trouble and downtime is saved by eliminating the exposed parts necessary with conventional pulley drives. In operation, the pulley shell rotates about the electric motor which is held stationary by a torque arm attached to the conveyor frame. The speed of the shell depends on the combined reduction ratio of the pinions and gears inside the shell. Compact, easy-to-install, job-proved Motorized Head Pulleys are available in sizes from 5 to 30 HP and in various widths.

Find out all the advantages of converting your belt conveyor or belt-bucket elevator installations to *motorized* efficiency before you need head pulley replacements. See your distributor today, or write for Bulletin MP-1.

IOWA MANUFACTURING COMPANY
Cedar Rapids, Iowa, U. S. A.

Built for sale in Arizona, California, Nevada, New Mexico, Southern Oregon, Southwestern Utah and Texas by
YUBA MANUFACTURING CO.
(Pulley and Sprocket Department)
Benicia, Calif.

**Fahralloy Cement Mill Castings *Fight* Heat and Corrosion**

FAHRALLOY chromium-nickel alloy castings give outstanding service on cement mill equipment, where heat, corrosion and abrasion are involved.

Fahralloy castings are ideal for sectional and segmental kiln ends, feed pipes and spouts, hoppers, clinker coolers, conveyor screws, drag chain and other parts. A modern foundry under complete laboratory control. Let us quote on your requirements. Engineers available for consultation.

THE FAHRALLOY COMPANY
15120 S. Lexington Ave., Harvey, Ill. Canadian Plant: Orillia, Ontario.

# BARGAINS

in

## Modern Used Crushing Plants

**PLANT NO. 1**—CEDARAPIDS MASTER TANDEM PORTABLE STRAIGHT LINE CRUSHING & SCREENING PLANT, Serial No. 4018 equipped with 10" x 36" Roller Bearing Jaw Crusher; 30" x 18" Roller Bearing Roll Crusher; Cedarapids 42" x 14' Double Deck Horizontal Vibrating Screen; Reciprocating Type Feeder with Steel Trap; Raff Return Wheel; 24" x 44' Feed Conveyor; 24" x 44' Delivery Conveyor; Sand Eliminator Attachment less Sand Conveyor; 23 Cu. Yd. Jackleg Steel Bin; powered with Caterpillar Model D-13000 Diesel Engine, Serial No. 9J-384 on steel skid base. Plant mounted on heavy duty channel frame with Tandem Rear Axles and Removable Front Dolly with twelve 10:00 x 20 Dual Tires all around and Mechanical Brakes on rear wheels. Plant, Engine, Belts and Tires in Good Condition. Approximate weight 73,-000 lbs. Approximate new value $48,700.00. Located at Albuquerque, New Mexico.

**PLANT NO. 2**—UNIVERSAL "TWIN-DUAL" MASTER PORTABLE CRUSHING & SCREENING PLANT, Serial No. 521X6 equipped with 10" x 24" Roller Bearing Jaw Crusher; Twin Dual Rolls with 22¼" x 14" Coarse Rolls and 24" x 16" Finishing Rolls; Universal 3' x 10', 2½ Deck Inclined Vibrating Screen; Reciprocating Feeder with Steel Trap; Rotovator Return Wheel System; 30" x 32' Swivel Feed Conveyor with Pneumatic Tired Transport Truck; 24" x 60' Delivery Conveyor with Pneumatic Tired Transport Truck; 30" x 31' 6" Plant Feed Conveyor with Clutch; 30" x 15' Under Crusher Conveyor; 30" x 23' 6" Truck Loading Delivery Conveyor; 18" x 14' 9" Sand Conveyor mounted on side of Plant; 23 Cu. Yd. 8' x 14' three compartment Jackleg Steel Bin; powered with G. M. C. Model 6031-C Diesel Engine, Serial No. 6-15460 mounted on Plant. Plant mounted on Heavy Duty Channel Frame with Tandem Rear Axles and Removable Front Dolly with twelve 8:25 x 20 dual tires all around and Air Brakes on rear wheels. V-Belt Drives throughout except for two short drives. Plant, Engine, Belts and Tires In Good Condition. Plant is priced right for quick sale. Approximate weight 70,000 lbs. Approximate new value $55,000.00. Located at Albuquerque, New Mexico.

***Phone, Wire or Write***

**R. L. HARRISON CO., Inc.**

**Albuquerque, N. M.**


| TO NEW MEXICO FROM | RATE |
|---|---|
| Berino, Vado, Mesquite, Dona Ana, Mesilla Park, Las Cruces, Hill, Leesburg | $2.40 |
| Tonuco, Rincon, Ft. Seldon | $2.80 |

**FREIGHT TRAFFIC COMMITTEE TRUNK LINE TERRITORY RAILROADS**

**Docket TL-M-2371** (Shipper)—Stone, broken or crushed, carload minimum weight 90 percent of marked capacity of car, from Oriskany Falls, N. Y., to Hancock, N. Y., $1.50 per net ton, subject to ExParte 175 increase, to be issued to meet motor competition.

**Docket TL-M-2374** (Carrier)—Proposed to establish on crude limestone, carload, not suitable for fluxing, agricultural or road building purposes, value not exceeding $1.00 per net ton and so certified on bill of lading, in open-top equipment, minimum weight 90 per cent of marked capacity of car, from Bellefonte, Pleasant Gap, Howard, and Chemical, Pa., to Siegfried, Martins Creek, Lesley, Stockertown, Omrod, Sandt's Eddy, Nazareth, Brodhead Bath, and Navarro, Pa., $2.00 per gross ton, subject to ExParte 175 increase.

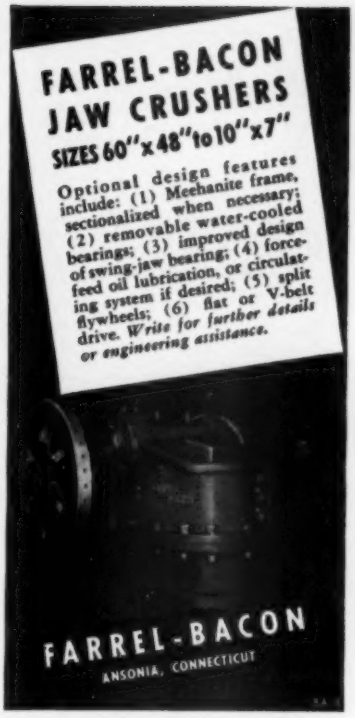
**Docket TL-M-2381** (Shipper)—Stone, broken or crushed, in open-top cars not protected by tarpaulin or other protective covering, carload minimum weight 90 percent of marked capacity of car, from Alsen, N. Y., to Howe's Cave, N. Y., $1.00 per net ton subject to ExParte 175 increase. To meet motor competition; will expire on December 31, 1952. Present rate 6th class.

**Docket TL-M-2390** (Carrier)—Proposed to establish on fluxing lime, not ground, in bulk, carload minimum weight 30 tons from Strasburg Junction, Va., to Brackenridge and Braeburn, Pa., $4.15 per net ton, subject to ExParte 175 increase.

**Docket TL-M-2432** (Shipper)—Stone, crushed and screenings, in straight or mixed carloads, in bulk, in open-top cars, minimum weight 90 percent of marked capacity of car. Will not include agricultural limestone or ground limestone, unburned, fluxing stone, or fire stone; or stone, coated with oil, tar, asphaltum, or similar bituminous materials. From DeVault, Pa., to Cromby, Pa., 80 cents per net ton, subject to X-175 increase, to be issued to meet motor truck competition, and to expire February 28, 1954.

**WESTERN TRUNK LINE COMMITTEE**

**Docket E-41-1413 (S)**—Proposed to establish on crushed rock (crushed stone), carload minimum weight 90 percent of marked capacity of car, except that when weight of shipment loaded to full visible capacity of car is less than 90 percent of marked capacity of car, actual weight will apply. In no case shall the minimum weight be less than 20 tons. From Sioux Falls, Dell Rapids, and Spencer, S. D., and Jasper, Minn., to Niobrara, Nebr., $2.65 per ton, in open cars, including ExParte 162-66-68 increases, subject to ExParte 175. (Republicized on account of proposal more than one year old.)



FARREL-BACON
JAW CRUSHERS
SIZES 60"x48"to10"x7"
Optional design features include: (1) Meehanite frame, sectionalized when necessary; (2) removable water-cooled bearings; (3) improved design of swing-jaw bearing; (4) force-feed oil lubrication, or circulating system if desired; (5) split flywheels; (6) flat or V-belt drive. Write for further details or engineering assistance.
FARREL-BACON
ANSONIA, CONNECTICUT

IT COSTS NO MORE — TO USE THE BEST

REPLACE WITH

*"Indian Brand"*

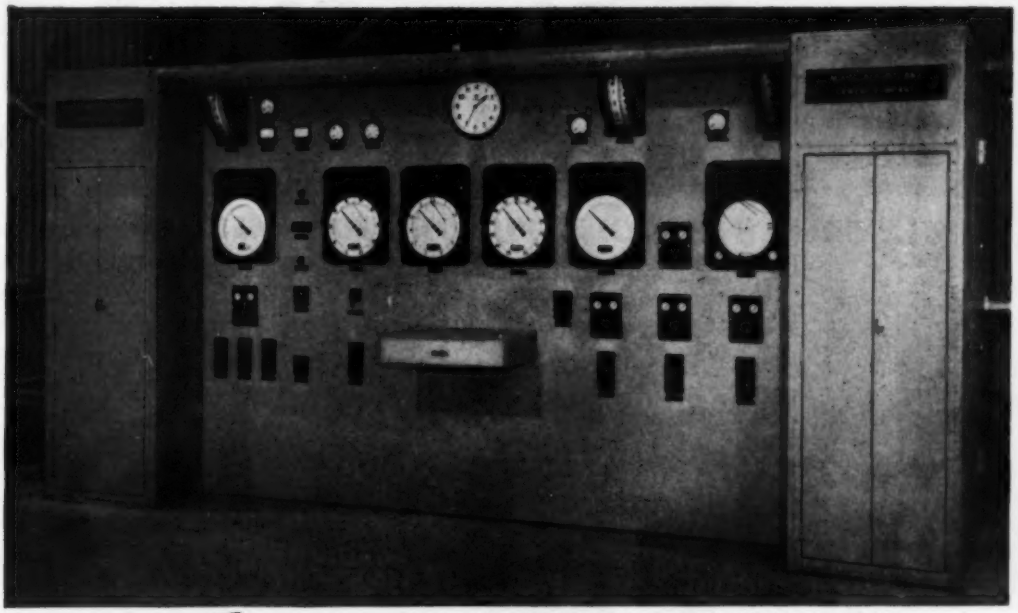
**MANGANESE STEEL**
**Shovel Dippers**
**Dipper Teeth**
**Shovel Treads**

**Crusher Jaw Plates**
**Mantles—Concaves**
**Bowl Liners**
**Roll Shells**

**Pulverizer Hammers**
**Grate Bars—Breaker Plates**

**Ball Mill Liners**
**Screen Plates**

**The Frog, Switch & Mfg. Co.** CARLISLE, PA.
***ESTABLISHED 1881***



Main Panel Board for control of 3000 bbl per day Kiln at Missouri Portland Cement Company, St. Louis, Missouri.

*3 Ways Better*

# ...Bailey Control for Rotary Kilns

Bailey Control for Rotary Kilns gives you better performance three ways:

1. Economical Operation
2. Uniform Quality of Product
3. Reduced Maintenance

These are advantages which can be achieved when all phases of kiln operation are coordinated to work together as a team. Here's how Bailey Kiln Control can help you get all three.

## ECONOMICAL OPERATION

With Bailey Combustion Control you can be certain that you are getting maximum product for every unit of fuel you burn. Bailey Control closely guards the Fuel-Air Ratio, Hood Draft, Fuel Feed, Clinker Cooling and the Temperature of Air for Combustion.

## UNIFORM QUALITY OF PRODUCT

Bailey Instruments and Controls can help you achieve a uniform high grade product. Measurements of temperatures, kiln speed, combustibles content, and oxygen content can be transmitted to recorders on centrally located control boards like the one shown. There is no sacrifice of accuracy or speed of response. High temperature alarm contacts may also be provided with Bailey Pyrometers as a further aid in achieving optimum uniformity of product.

## REDUCED MAINTENANCE

By maintaining uniform temperatures and excess air conditions in the kiln, Bailey Controls help to reduce to a minimum costly refractory repairs and wear and tear on auxiliary equipment.

Bailey Meter Company has a staff of engineers who are experts in the control of rotary kilns. Assure yourself of optimum kiln performance. Let one of these men help plan your Kiln Control System. P-22

**BAILEY METER COMPANY**

1051 IVANHOE ROAD • • • CLEVELAND 10, OHIO

*Controls for Processing*

TEMPERATURE FLOW
PRESSURE LEVEL
% OXYGEN DENSITY
% COMBUSTION RATIO

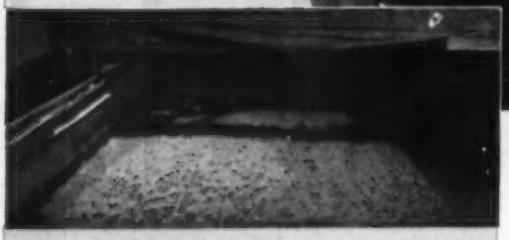
# No Blinding!

## ...SCREENING MOIST PULVERIZED LIMESTONE

**ALLIS-CHALMERS**

**THERMO-DECK Heating Unit**

No blinding on this *Ripl-Flo* screen handling moist limestone.



This is what happened on the same screen when we turned the *Thermo-Deck* heating unit off for half an hour.

*Thermo-Deck* heating units can be applied to your Allis-Chalmers screens in the field. For more facts, call the A-C representative in your area or write for Bulletin 07B7812. Allis-Chalmers, Milwaukee 1, Wisconsin.

**SCREENS MOIST, FINE MATERIALS** . . . with no "time out" to clear the screen cloth. Low voltage resistance heating keeps screen mesh free of blinding.

**HEATED CLOTH LASTS 3 TIMES AS LONG!** Clear screen cloth carries less weight than blinded cloth; has less tendency to whip. Damage resulting from pounding or brushing is greatly reduced.

**SCREENING CAPACITY INCREASED 2 WAYS!** More tonnage goes through the screen when cloth *remains* open. And, with no downtime to clear the screen, more tonnage goes through per day. A-3935

*Thermo-Deck* and *Ripl-Flo* are Allis-Chalmers trademarks.

# ALLIS-CHALMERS

**Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.**

Hammermills

Vibrating Screens

Jaw Crushers

Gyratory Crushers

Grinding Mills

Kilns, Coolers, Dryers

# GREFCO BASIC BRICK For All Industry

The pace of industrial progress in the past 20 years has been greatly accelerated by the performance of one of the most unique refractory (heat-resisting) products ever developed. RITEX (RIght TEXture)—Grefco's exclusive and patented basic brick.

**RITEX REVOLUTIONIZES PRODUCTION**

In furnaces of all kinds, where basic slags are employed, RITEX withstands conditions that would destroy other types of refractories in a short time—provides service that is often measured in months or years, instead of in days or weeks. No other product can match RITEX for toughness under fire in so many industries. RITEX speeded, in great measure, our rapid victory of World War II.

RITEX is world famous for spectacular increases in production of steel, brass and copper . . . for severe service in cement kilns, paper plant recovery furnaces, glass tank checkers and regenerators. RITEX has no equal!

**WHAT IS RITEX?**

RITEX brick are made of high grade magnesite and chrome ores, combined in the proportion needed for best service in each type of furnace. Exclusive RITEX features are its combination of scientific grain sizing, high forming pressure, and patented highly refractory chemical bonds.

It is "tops" in resistance to a combination of shrinkage, spalling, slag corrosion, load and abrasion—offers minimum heat loss through the lining. For service too tough for any other product—and for major savings in many operations—depend on Grefco's exclusive RITEX.

## Cement *made with brick?*

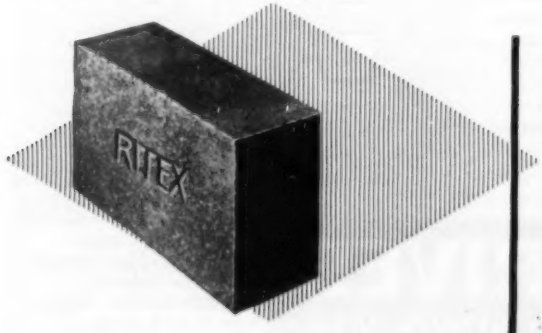
● Pasquale's a skeptic!

But it's true—he wouldn't be finishing that sidewalk, were it not for *refractory* brick to resist the high heats required in the kilns, coolers, boilers, stacks and dryers of the Portland cement industry.

General Refractories Company provides the cement industry with quality refractories products—every step of the way. Just as Grefco products are favorites in the steel, non-ferrous, glass, paper, power and other industries.

66 Grefco mines and plants—here and overseas—are on the job. Grefco's matchless research facilities . . . its 18 sales offices and 200 distributing agencies— are at your command, for the asking.

Call on General for a truly *complete refractories service!*




**GENERAL REFRACTORIES COMPANY**

**PHILADELPHIA**

# Cut Your V-Belt Costs Right Now!

## —this test tells how!

If you want longer V-Belt wear and lower V-Belt costs just make this simple test. Bend any V-Belt that has *straight sides* and—as it bends—*feel* the sides bulge out! (See Fig. 1-A, below)

This out-bulge forces the belt to press unevenly against the V-pulley and of course wear on the belt is concentrated where it bulges most. Naturally this shortens the life of a *straight-sided* V-Belt.

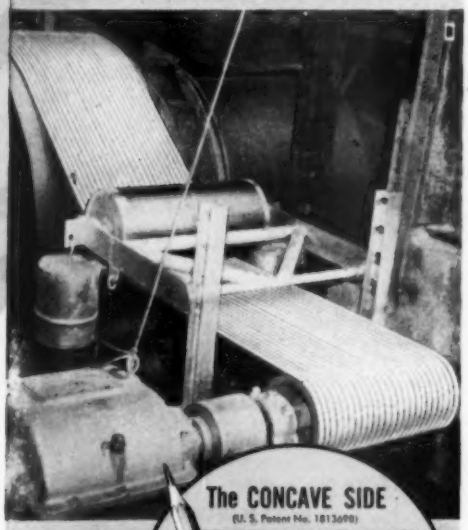
Now, make this same test with the belt that is built with *concave sides*—the Gates Vulco Rope!

See the difference? There is no *out-bulge!* The precisely engineered concave sides *fill out* and become *perfectly straight.* They now *exactly fit* the sheave groove and therefore *press evenly* against the V-pulley. This distributes all wear *uniformly* across the *full width* of the Gates Vulco Rope. And this means longer belt life and *lower belt costs* for you.

Only V-Belts made by Gates are built with concave sides. Whenever you buy V-Belts, be sure that you get the V-Belt with Concave Sides—the Gates Vulco Rope!

Gates Engineering Offices and Jobber Stocks are located in all industrial centers of the United States and in 71 foreign countries.

Silica dust quickly wore out the gear and pinion drive on this sand drying drum. So a Gates man suggested building a flat pulley around the drum (as shown) and running V-Belts on it. Mr. M. D. Pinkerton, plant superintendent, says, "It cost about $4300 to make the change but we are saving about $15 per day without a bit of trouble. The original Gates Vulco Ropes are still good after running every day since September, 1949."

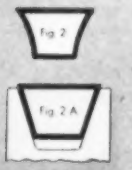


**What Happens When a V-Belt Bends**

**Straight-Sided V-Belt**

How a Straight-Sided V-Belt Bulges in the Sheave-Groove. Sides Press Unevenly Against the V-Pulley, Causing Extra Wear at Point Shown by the Arrows.

**Gates Vulco Rope With Concave Sides**




The Concave Sides Fill Out to Precise Fit in Sheave-Groove. No Side-bulge! Sides Press Evenly Against the V-Pulley —Uniform Wear and Longer Life!

CS-531

Gates® VULCO ROPE **DRIVES**

THE GATES RUBBER COMPANY • DENVER, U.S.A.

**V-Belts — Hose Molded Rubber Goods for industry World's Largest Maker of V-Belts**

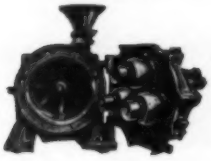
# You Can Cut Today's High Production Costs with STURTEVANT EQUIPMENT

**AIR SEPARATOR**

For separation of fines to 325 mesh and finer. Increases output from 25% to 300% . . . lowers power costs by 50%. For years, this separator has been the standard in the cement industry.

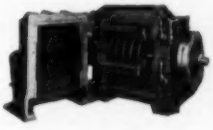
**DUSTLESS BLENDER**

Four-way mixing action assures a thoroughly blended product. Open-door accessibility permits easy cleaning. Available in many mixing capacities for ¼ ton per hour and up.



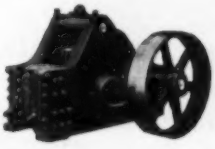
**RING-ROLL MILLS**

For medium and fine reduction (10 to 200 mesh), hard or soft materials. Very durable, small power. Operate in closed circuit with Screen or Air Separator. Open-door accessibility. Many sizes. No scrapers, plows, pushers, or shields.



**SWING-SLEDGE MILLS**

For coarse and medium reduction (1" to 20 mesh). Open-door accessibility. Soft, moderately hard, tough or fibrous substances. Built in several types and many sizes.



**JAW CRUSHERS**

For coarse, intermediate and fine reduction of hard or soft substances. Heavy or light duty. Cam and Roller action. Special crushers for Ferro-alloys. Several types, many sizes.

Sturtevant equipment, such as illustrated, helps you overcome high labor and production costs by increasing output. In addition, their rugged construction assures long life with minimum maintenance. It will pay you to investigate these machines. Write for information.

**STURTEVANT MILL COMPANY**

**104 CLAYTON STREET, BOSTON 22, MASSACHUSETTS**

*Designers and Manufacturers of:* CRUSHERS • GRINDERS • SEPARATORS CONVEYORS • MECHANICAL DENS and EXCAVATORS • ELEVATORS • MIXERS

**MAIL COUPON TODAY!**

STURTEVANT MILL COMPANY
104 Clayton Street, Boston 22, Mass.

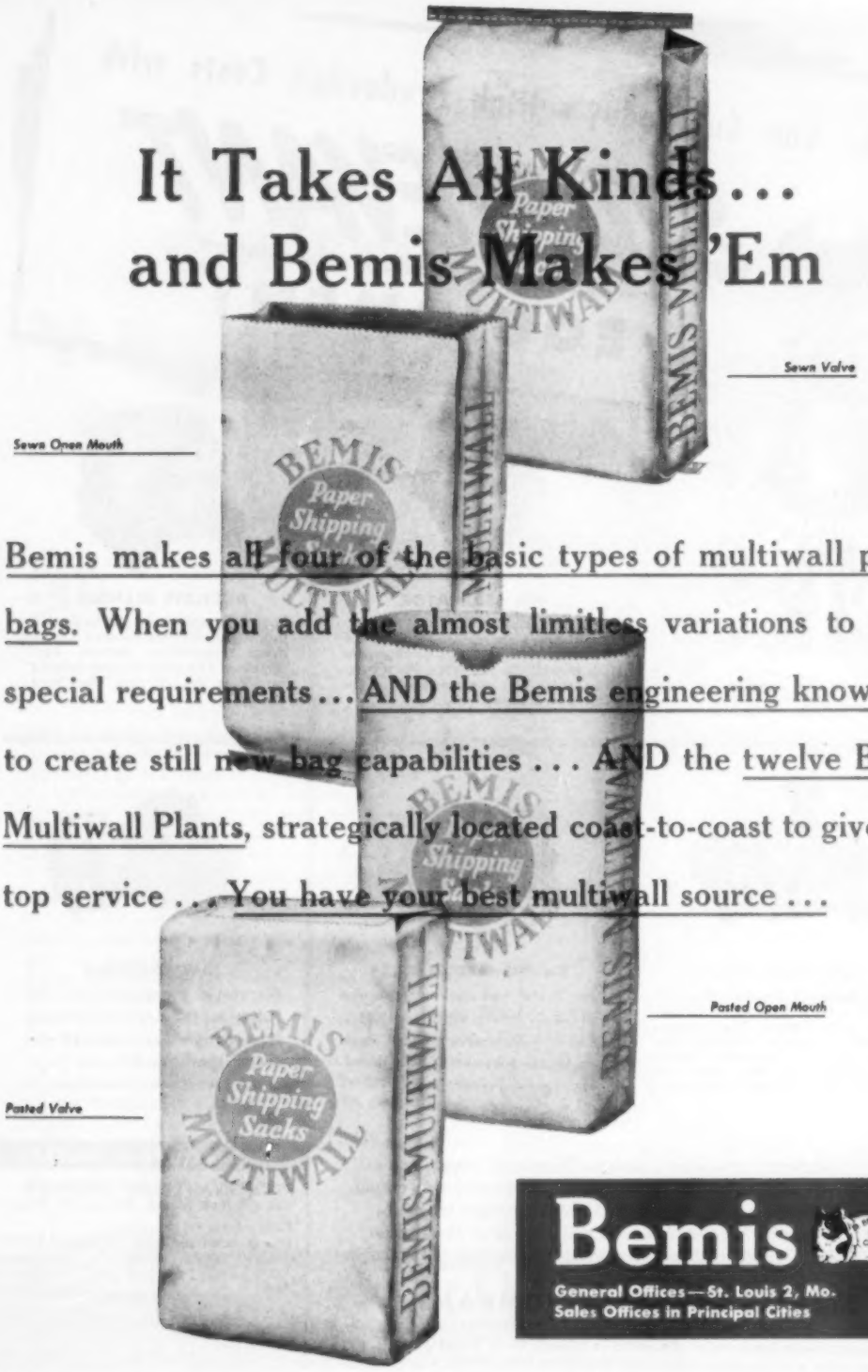
Gentlemen:
Please send me your catalog. I am especially interested in _____

*Name* _____

*Street* _____

*City & State* _____

# It Takes All Kinds... and Bemis Makes 'Em




Sewn Valve

Sewn Open Mouth

Pasted Open Mouth

Pasted Valve

Bemis makes all four of the basic types of multiwall paper bags. When you add the almost limitless variations to meet special requirements... AND the Bemis engineering know-how to create still new bag capabilities... AND the twelve Bemis Multiwall Plants, strategically located coast-to-coast to give you top service... You have your best multiwall source...

**Bemis**

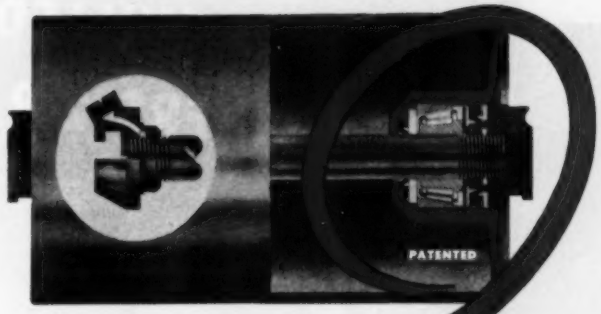
BAG COMPANY

General Offices—St. Louis 2, Mo.
Sales Offices in Principal Cities

# NEW UST* Continental Idlers

*** UNIT-SEALED PRE-LUBRICATED TIMKEN BEARINGS**

*Saves Grease!*
*Saves Labor!*
*Saves Belts!*



**STANDARD DUTY IDLER**

- **UNIT-SEALED**
- **PRE-LUBRICATED**
- **TIMKEN BEARINGS**

Continental's Unit-Sealed "UST" Conveyor Idlers, incorporating Timken Bearings, Garlock Klozures, are the answer to the operator's prayer.

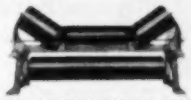
The Unit Bearing Assemblies—"sealed unto themselves" provide an ample but not excessive grease reservoir. This represents a saving of grease and further eliminates any possible migration of the grease from upper to lower bearings on inclined rolls. The lubricant is a top quality water repellent grease of a stable consistency with a wide temperature range for long life.

Most important—this construction permits operating the Continental "UST" Idler without relubrication for 1-2-3 years depending upon the severity or character of conditions.

***Write for Bulletin P.Q.-116***

**SELF-ALIGNING FLAT BELT IDLER**

**RUBBER DISC IMPACT IDLER**



**GRAIN CONCENTRATION IDLER**

**SELF-ALIGNING TROUGHING IDLER**

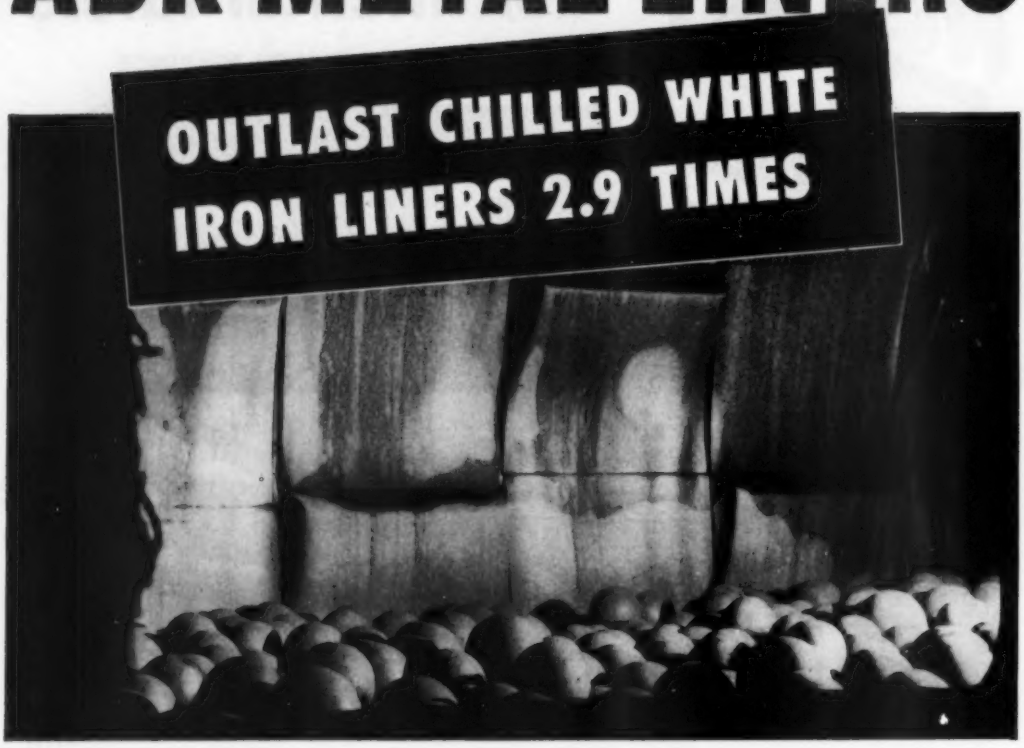
***Long Life*— THE ULTIMATE IN MINIMUM MAINTENANCE**

CG—5209

**INDUSTRIAL DIVISION**
**CONTINENTAL GIN COMPANY**
**BIRMINGHAM, ALABAMA**

**ENGINEERS** CGC ATLANTA • DALLAS • MEMPHIS • NEW YORK CGC **MANUFACTURERS**

# ABK METAL LINERS




## *Outstanding service life brings big savings*

At Keystone Portland Cement Co., Bath, Pa., comparative liner performance in the primary compartment of a 7'-3" diameter wet mill, grinding raw stone with 3½" balls, was as follows:

**Life of chilled white iron liners 751,000 barrels**
**Life of chilled ABK Metal liners 2,180,000 barrels**

Experience has shown that the tremendous abrasion resistance of ABK Metal liners will give outstanding service life in primary, secondary and tertiary compartments in both wet and dry grinding. In spite of their extremely high hardness ABK Metal liners can be worn down as thin as ¼" and some operators have reported sections as thin as ⅛".

Reductions in replacement costs and in "down time" effect substantial savings with the result that many large companies have standardized on ABK Metal mill liner segments.

**for better protection against abrasion specify**

**ABK METAL**

American Brake Shoe Company

**BRAKE SHOE AND CASTINGS DIVISION**
230 Park Avenue, New York 17, N. Y.

*Your Management wants to know...*

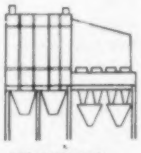
# How valuable dust recovery saves dollars

In every industry, from rock products to food to steel, Buell engineers, working with plant engineers, have established an enviable 18-year record of turning unnecessary dust losses into substantial new profits. What's more, Buell Dust Recovery Systems uncover, for all American industry, these additional important advantages: improved product quality, smoother plant-community relations and higher employee morale.

To take advantage of Buell's background and experience in the highly specialized science of dust recovery, ask for further information about Buell's **3 basic systems** of dust collection. See how they can help you turn dust into dollars. Send for Buell's new, informative bulletin titled, "The Collection and Recovery of Industrial Dusts." Buell Engineering Co., Dept. **18-A**, 70 Pine Street, New York 5, New York.

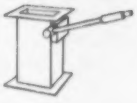
VAN TONGEREN CYCLONE

'SF' ELECTRIC PRECIPITATOR



PRECIPITATOR—CYCLONE COMBINATION

TYPE 'LR' COLLECTOR



DUST HOPPER VALVES

ELECTRIC CYCLONIC

buell

ENGINEERED EFFICIENCY IN DUST RECOVERY

GM DIESEL
CASE HISTORY No. 526-25

**USER:** Aurora Limestone Products Co., Aurora, Iowa, producers of road stone and agricultural lime.

**INSTALLATION:** GM 3-71 Diesel powers a ¾ yd. Unit shovel, replacing a ¾ yd. shovel powered by a gasoline engine.

**PERFORMANCE:** GM Diesel powered shovel works faster, feeding crusher about 17% more per day. Fuel consumption averages 4 gallons per hour, saving 33⅓ on operating costs.

# THIS DIESEL LOADS FASTER

## and costs ⅓ less to operate

A few days after Aurora put this shovel to work, they rented a 2-cycle General Motors 6-110 Diesel for their portable crusher while the old 2-cycle Diesel was in for overhaul. Production increased from 600 tons per day to 800 tons. Fuel costs dropped from $14.00 per 10-hour day to $9.80. Needless to say, the 6-110 now powers the crusher. With power on every piston down-stroke, fast accelerating GM Diesels enable equipment to do more work each day. They're quick starting—easy to service and cost less to maintain. That's why users tell us "any machine with GM Diesel power is a better machine." Specify GM Diesels for your equipment.

**DETROIT DIESEL ENGINE DIVISION**
GENERAL MOTORS • DETROIT 28, MICHIGAN
SINGLE ENGINES...71 to 375 H.P. MULTIPLE UNITS...106 to 840 H.P.

*It pays to Standardize on*

Write for booklet, "A 20,000,000 Horsepower Investment Policy" that tells you why.

GM
GENERAL MOTORS
DIESEL POWER

*IF your goal is..*

## GREATER OUTPUT AT LOWER COST

*You need..*

# LIMA type 1201

**3 or 3½ yd. capacity**

**TAKE A LOOK AT THESE *Features***

Precision Air-Control of all major operations.
Big, wide drums.
One-piece cast, annealed steel machine base.
Crawlers are extra long and wide, for greatest ground-bearing area.
Splined shafts for permanent alignment.
Control permits hoist, swing, propel and boom up or down at the same time.
Rugged Diesel or electric power for big output in hard digging.
Big, roomy all-steel cab.
Independent chain crowd on shovel.
Anti-friction bearings throughout, including the drums.
Large, deep-throated point sheaves on crane or dragline boom.
—and many others.

● Quarry and pit operators faced with the problem of maintaining profits despite continually rising labor and other costs, will find a solution in the LIMA Type 1201 shovel, crane and dragline. Here is a machine capable of *peak production* day after day with greater efficiency, fewer delays and less operator fatigue. The shovel and dragline are especially designed and built for hard usage in pits and quarries.

*A LIMA representative will gladly show you how a LIMA Type 1201 can cut costs on your mining operations. The LIMA line includes shovels ¼ to 6 yards, cranes to 110 tons, and draglines variable. Offices in principal cities of the world.*

**BALDWIN-LIMA-HAMILTON CORPORATION**
**CONSTRUCTION-EQUIPMENT DIVISION**
**LIMA, OHIO, U.S.A.**

BALDWIN · BLH · LIMA-HAMILTON

**BALDWIN-LIMA-HAMILTON**

**SHOVELS • CRANES • DRAGLINES • PULLSHOVELS • TRUCK CRANES**

DODGE TAPER-LOCK
SOLID STEEL CONVEYOR PULLEYS

So-o much Simpler!

- The pulley for *modern* belt conveyors.
- Steel hubs with famous Taper-Lock bushing (patented) give equivalent of shrunk-on fit. No "walking" on the shaft. Easy on — Easy off.
- Drum type construction provides maximum strength with minimum weight.
- Accurately formed. Uniform rim thickness. Fully enclosed — to exclude dust, dirt, water.
- Diameters 6 in. to 8 ft., all face widths. Popular sizes stocked by our distributors.

**DODGE**

*of Mishawaka, Ind.*

**DODGE MANUFACTURING CORPORATION**
**4000 Union Street, Mishawaka, Indiana**

**CALL THE TRANSMISSIONEER,** your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new, cost-saving methods. Look for his name under "Power Transmission Equipment" in your classified telephone directory.

**FIRST**
IN POWER TRANSMISSION MACHINERY!

V-BELTS AND TAPER-LOCK SHEAVES

TORQUE-ARM SPEED REDUCERS

DODGE-TIMKEN PILLOW BLOCKS

ROLLING GRIP AND DIAMOND D CLUTCHES

# Du Pont "NITRAMON" provides safer . . . more economical quarry blasting

**In well drill holes,** the watertight metal cans of "Nitramon"* are easily lowered by means of rope attached to triangular-shaped bail on each can. "Nitramon" Primers are similarly loaded and may be detonated with "Primacord."

**In coyote tunnels,** "Nitramon" allows the use of ordinary electric lighting systems to illuminate the operation and speed up loading. In addition, because "Nitramon" contains no nitroglycerin, it is non-headache-producing . . . a welcome plus value.

Du Pont "Nitramon" is the safest blasting agent known. Not an explosive in the usual sense, "Nitramon" cannot be detonated with ordinary blasting caps or by open flame, friction, falling objects or even the impact of rifle bullets. And yet, charges of "Nitramon" are dependably detonated with a combination of a "Nitramon" Primer and "Primacord."

"Nitramon" has a remarkable safety record in quarries from coast to coast, and its popularity has steadily increased. A companion product—Du Pont "Nitramex"** offers similar safety features, and provides extra strength. It is frequently used in combination with "Nitramon" when hard-shooting conditions are encountered.

Why not introduce the use of Du Pont "Nitramon" and "Nitramex" in your own quarry? They are dependable...safer to handle...convenient and economical. Ask the Du Pont representative in your area for complete information about these safest of all blasting agents. E. I. du Pont de Nemours & Co. (Inc.), Explosives Dept., Wilmington 98, Delaware.

*Reg. Trade-mark for Du Pont ammonium nitrate blasting agent.

**Reg. Trade-mark for nitrocarbonitrate blasting agent.

## DU PONT "NITRAMON"

*A product of Du Pont Explosives Research*

DU PONT

REG. U.S. PAT. OFF.

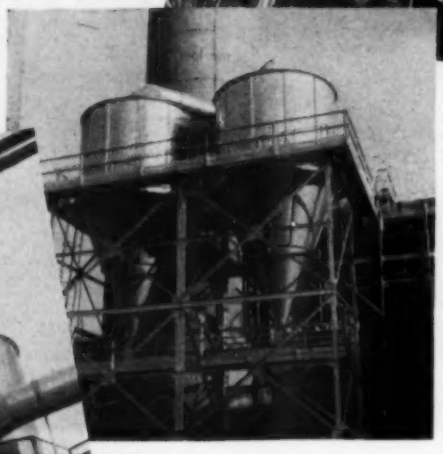
BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

# Norblo

**helps you to achieve outstanding efficiency in dust and fume collection**

*with these three important systems*

**Automatic Bag Type**



**Cyclone**

**Hydraulic**

**Norblo *Portable* Dust Collecting Units,** bag or filter types, give you localized dust control. Comply with all state and city codes. Three sizes, six rating selections from 300 C.F.M. to 1350 C.F.M. Write for Bulletin 163-5.

Dust and fume control ranks high among the facilities considered necessary in modern industrial operations. Now you figure the economy of safeguarding against explosions — of increasing the general efficiency of your plant — of salvaging valuable fumes and dusts.

Norblo makes three principal types of collection systems — engineers each installation from first hand experience of 40 years in many industries. High-efficiency equipment having the correct factors to suit your needs includes the Norblo guarantee of performance, economy and low maintenance. Before you decide on any fume or dust collection equipment consult the Norblo engineering department.

## THE NORTHERN BLOWER COMPANY

***Engineered Dust Collection Systems for All Industries***

**6407 BARBERTON AVE. • CLEVELAND 2, OHIO**

# Bucyrus-Erie 6-Yd. 150-B

## *Sets New High Standards* in Rock

**Here are four of the most important reasons why —**

BUCYRUS ERIE
SOUTH MILWAUKEE
WISCONSIN

*Maximum Strength — Minimum Weight* in this exclusive two-section shovel boom. Lower section, rigidly connected to the A-frame, has ample strength to take shock loads. There is no torsion in the tubular handle . . . it is free to rotate in the cylindrical saddle block. Independent rope crowd with crowd machinery on the main deck means low swing inertia and faster cycles.

*Dual Twin Hoist Ropes* provide steady, positive, digging action. Hoist power is automatically concentrated at the part of the dipper lip where it is most needed — power application that is unmatched for rock digging.

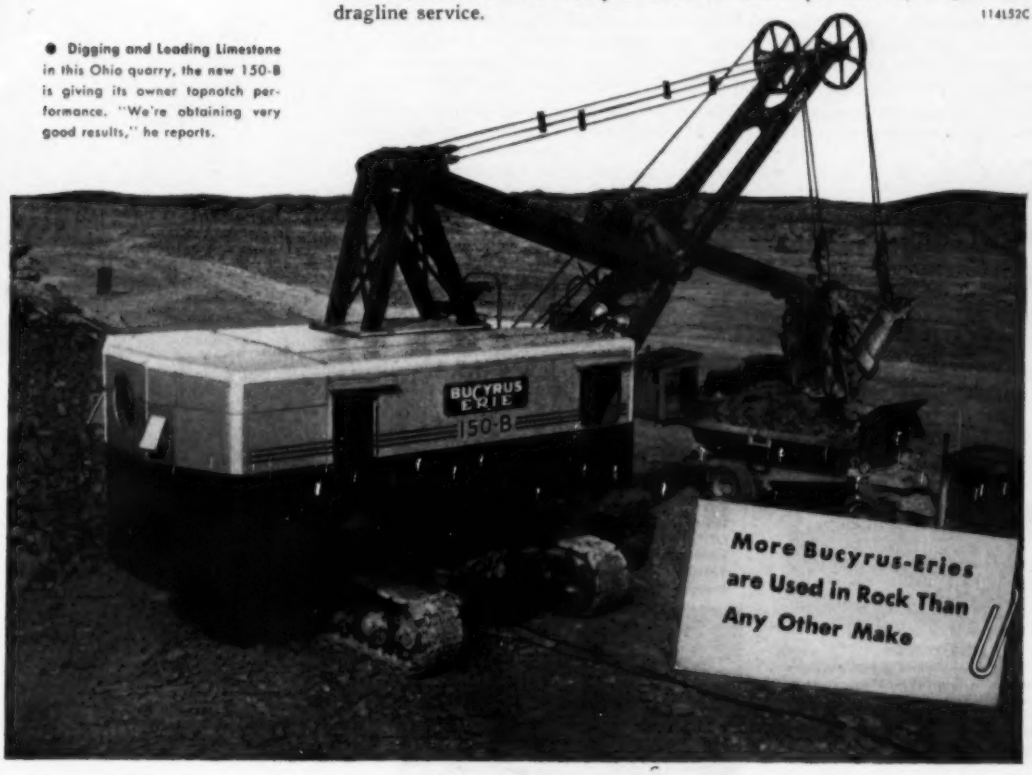
*Quick-Action Propel* — The 150-B's propel machinery can be quickly engaged for faster move-ups or for getting away from slides. Less time lost in moving pays off in higher output.

*Heavy-Duty Construction* means less downtime, lower maintenance costs. Larger, stronger lower works stand up to rough quarry duty. Box-section caterpillar treads have separate paths for rollers and driving tumblers. Treads stay in adjustment longer and resist wear better.

These big advantages, plus improved Ward-Leonard rotating variable voltage control, mean faster cycles and higher output in hard digging. In addition, the 150-B is readily convertible to independent-motor powered dragline service.

114152C

● **Digging and Loading Limestone** in this Ohio quarry, the new 150-B is giving its owner topnotch performance. "We're obtaining very good results," he reports.



# THINK BIG... WHEN YOU

**BIG CAPACITY** **BIG PROFIT**

**BIG PERFORMANCE**

# THINK CEDARAPIDS...

***for higher percentages of secondary crushing and greater screening capacity***

## THE COMMANDER

Here's a plant that averaged 350 tons per hour of 1" material *with 20% crush* on a job in Minnesota. In another pit, the Commander produced 445 tons of ¾" material per hour with approximately 12% to 15% crushing! That's the kind of output that lets you *think big* about aggregate production and profit.

The Cedarapids Commander was designed specifically for producers who need greater output of fine-crushed products, or whose pit conditions put a bigger load on the secondary crusher. The big 30" by 22" roll crusher increases secondary crushing capacity by approximately 50% and steps up the stage of reduction.

To balance out this greater roll crusher output, the large 48" x 10' two-and-a-half deck horizontal vibrating screen provides 30% more screening capacity for the plant. The feed conveyor, delivery conveyors and under-crusher conveyor are 30" wide to handle the higher capacity of the plant. Best of all, *maintenance and operating costs are as low as on other Cedarapids plants!*

ANOTHER Cedarapids PRODUCT

The Commander is loaded with other big production features. Ask Commander owners for facts and figures or see your Cedarapids distributor for complete details.

**IOWA MANUFACTURING COMPANY**
**Cedar Rapids, Iowa, U.S.A.**

**MASTER TANDEM**
Here's the biggest all-around gravel producer in the Iowa line. With a 10" x 36" jaw crusher, 40" x 22" roll crusher and 48" x 12' screen, the *Master Tandem* is really the master of low-cost, big volume production on a wide variety of crushing and screening jobs.

**PITMASTER**
This is the plant you'll want for smaller jobs. The Pitmaster's 10" x 16" jaw crusher, 16" x 16" roll crusher and 30" x 9'5" screen assure excellent production and extremely economical operation. For pits with a higher percent of oversize, ask about the Twin Jaw Pitmaster.

**DOUBLE IMPELLER IMPACT BREAKER**
When you need cubical shaped aggregate in tremendous volume, check the performance records of this impact breaker. On one job, the big Model 5050 established a peak production record of 724 tons per hour. Exceptionally low-cost operation assures a high return on your investment.

# THINK OF AGGREGATE PRODUCTION

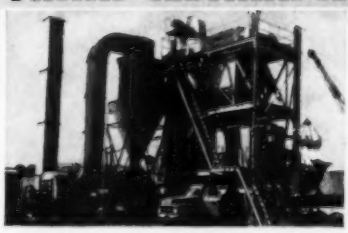
Solving the "growing-pain" problems of our highway system is a real job. It *can* be done, but it will take big thinking. Billions of tons of aggregate are needed to keep America on wheels. *Think big* about equipment to produce it!

Think of equipment that produces greater hourly tonnages than ever before . . . equipment that's quality-built to take a daily beating in the world's toughest industry, and still keep slugging away, month after month. Think about the bidding advantages of equipment that combines big capacities with low operating and maintenance expense to hold per ton costs to levels comparable with those of twenty years ago!

You American contractors have the know-how to solve the critical highway problem . . . Cedarapids provides the equipment to help you *think big* about profitable production of big volumes of aggregate.

# FOR EVERY CRUSHING AND SCREENING JOB

## THINK CEDARAPIDS . . . WHEN YOU THINK BLACK TOP

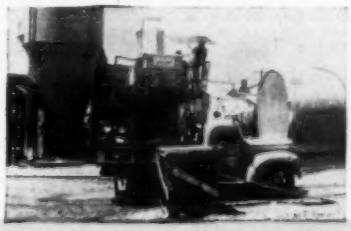


**MODEL E**

Two tons at a batch is average production for this Cedarapids Bituminous Mixing Plant. All-electric operation plus automatic time controls, signal lights and air controls insure absolute accuracy of mix and profitable production for low-bidding contractors.

**MASTER PLANT**

This two unit continuous-mix plant combines the Cedarapids Master Mixer and Gradation Control to supply specification mix in big volume. The mixing unit is offered with either a twin shaft pugmill which conforms to all existing specifications, or a single shaft pugmill designed for high speed, vigorous mixing.



**MODEL FA**

The most portable batch type bituminous mixer in the Cedarapids line. The FA can be set up for operation in a matter of hours. Centralized controls insure fast, easy, one-man operation. Balanced coordination of every part produces up to 350 tons per day of accurately weighed and uniformly mixed aggregates and bitumen. Quality-built for long-term service at lowest cost.

# "For TOUGH JOBS... No Other Oil can match Sinclair SUPER TENOL"

...Elvin L. Jones, Supt. of Maintenance
Standard Sand and Silica Company

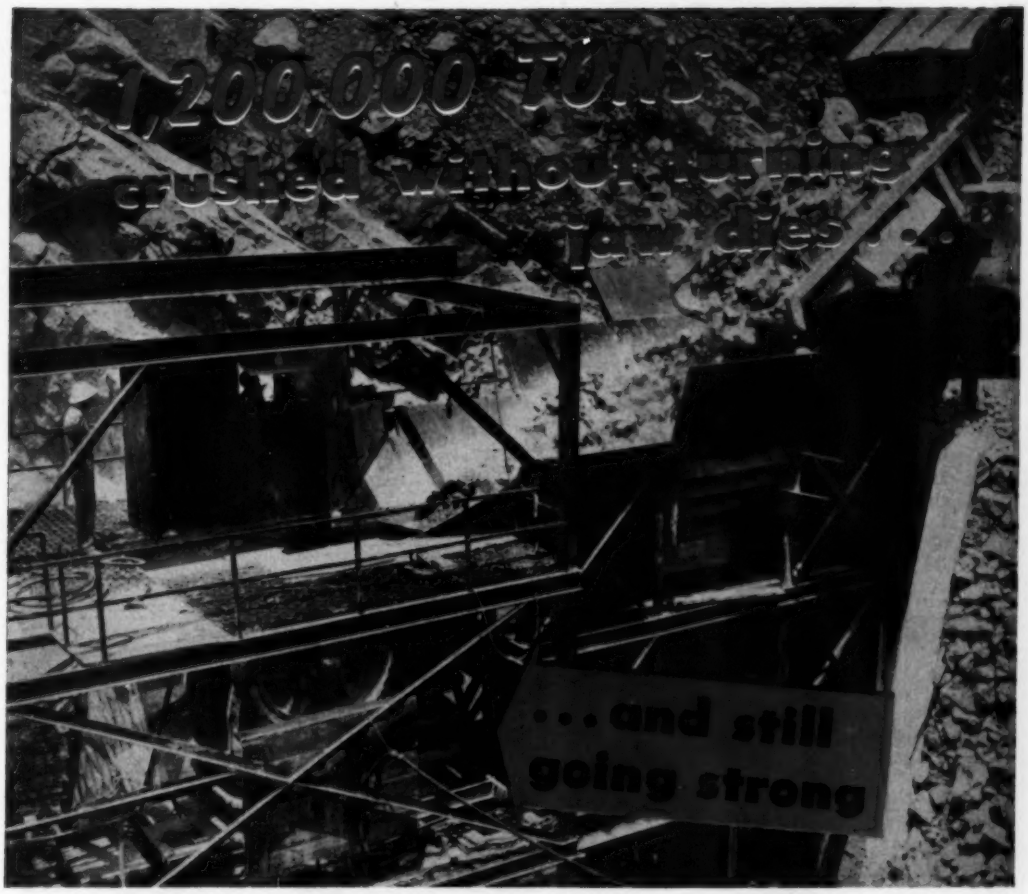
The Standard Sand and Silica Company of Davenport, Florida, mines 2,000 tons of sand a day, six days a week. Its products are used in concrete, masonry work and in sandblasting ships, buildings and railroad equipment.

One of the main pieces of equipment is a Super C Tournadozer. Mr. Elvin L. Jones, Supt. of Maintenance says that "Sinclair SUPER TENOL® is giving *superior service* in this machine. When it comes to tough jobs . . . there's not another oil on the market that can match SUPER TENOL."

He continues, "SUPER TENOL has also been used in our G.M. 6-71 diesel for 18 months. One third of the time, this machine operated 24 hours a day . . . *and we haven't spent a single penny for maintenance.*"

To find out how Sinclair Products can help you cut maintenance costs and keep production in high gear, call your local Sinclair Representative or write to Sinclair Refining Company, 600 Fifth Avenue, New York 20, N. Y.

**SINCLAIR SUPER TENOL**
...for YOUR Tough Jobs




This Lippmann GRIZZLY KING Jaw Crusher at Alabama Aggregate Company, Pelham, Alabama, has crushed 1,200,000 tons of tough Blue Ridge rock since it was installed. Discharge opening is 5 inches. The management reports that this tremendous output has been attained without interruptions — that the reversible jaw dies have not been touched, not even reversed.

No other jaw crusher can match GRIZZLY KING'S capacity and performance. Extra-long curved and reversible jaw dies, engineered crushing action with alloy steel frame and jaw add up to the rock-eatingest crusher on the market today. The GRIZZLY KING is the world's highest capacity overhead eccentric jaw crusher and is available in sizes up to 36" x 48" opening.

Other Lippmann equipment at Alabama Aggregate includes an apron feeder and discharge belt conveyor with Lippmann Life-Sealed Ball Bearing Idlers. Leading operators the world over choose Lippmann for their crushing, screening and washing plants both stationary and portable. It will pay *you* to do so too.

**LIPPMANN ENGINEERING WORKS, 4607 W. MITCHELL ST., MILWAUKEE 14, WISCONSIN**

LEW LIPPMANN

CRUSHERS · FEEDERS · SCREENS · CONVEYORS · CRUSHING & WASHING PLANTS

## "I always choose my Primacord as carefully as I use it . . .

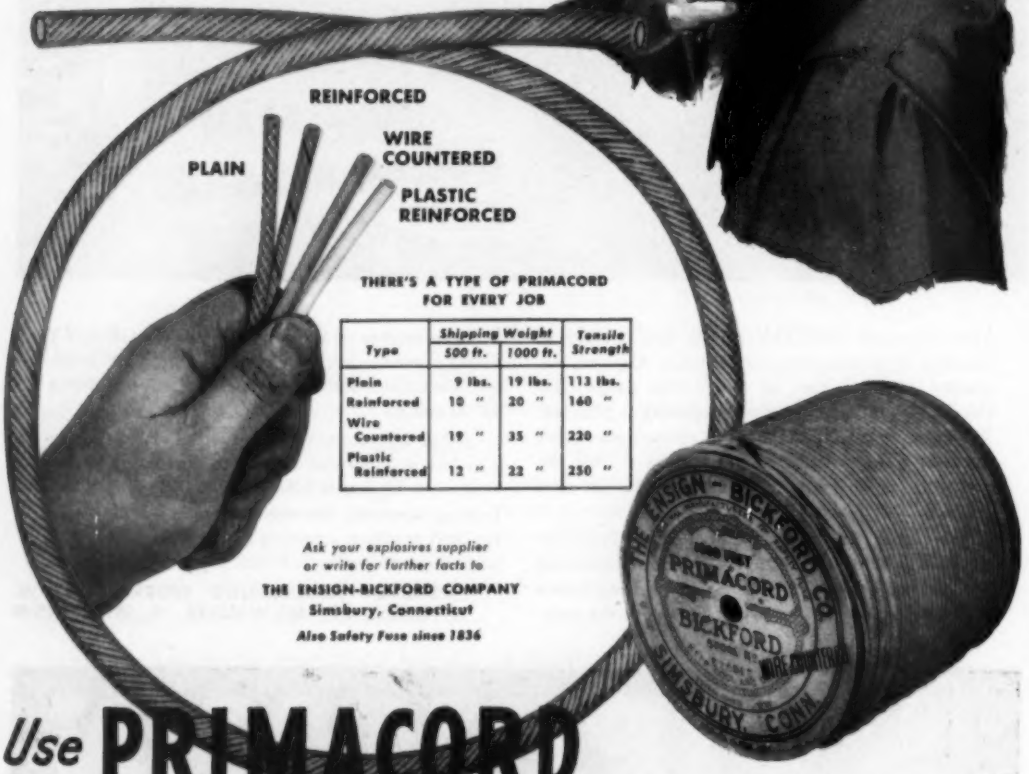
"I've used Primacord to shoot over-burden, ore, rock – and to ditch and clear right-of-way all-over the country. I get good results every time because I choose my Primacord as carefully as I use it.

"Plain Primacord I put down in small-bore or shallow holes, and also use it for the trunk line to hook them up. It's strong, light in weight, and economical. It's easy to tie tight to make a good connection.

"Reinforced Primacord is good insurance where I'm loading deep holes. It'll carry more weight and has a tougher cover to resist abrasion and cutting.

"Wire Countered Primacord is bound with fine wire. I always use it if I think there's any danger of sharp rocks or heavily reinforced explosives containers cutting the Primacord.

"Plastic Reinforced Primacord has a tough, waterproof plastic cover. I've used it in river crossings, in deep holes, or where field shots must stand a long time before blasting. It will take a lot of punishment, and is not affected by high summer heat or winter cold."




**THERE'S A TYPE OF PRIMACORD FOR EVERY JOB**

| Type | Shipping Weight 500 ft. | Shipping Weight 1000 ft. | Tensile Strength |
|---|---|---|---|
| Plain | 9 lbs. | 19 lbs. | 113 lbs. |
| Reinforced | 10 " | 20 " | 160 " |
| Wire Countered | 19 " | 35 " | 220 " |
| Plastic Reinforced | 12 " | 22 " | 230 " |

*Ask your explosives supplier or write for further facts to*

**THE ENSIGN-BICKFORD COMPANY**
**Simsbury, Connecticut**
***Also Safety Fuse since 1836***

# Use PRIMACORD®

P-1

## *The PROVED and APPROVED DETONATING FUSE*

# Strip Act Goes Underground

**TOPS FOR TIGHT PLACES.** This compact International TD-9 and loader combination is a natural for work in close quarters.

## International TD-9 loads 600 tons of shot rock daily for Missouri quarry

Two years ago, Rock Acres Development Company, Independence, Missouri, was a stripping operation.

Today, they're quarrying underground, with a yearly production of 120,000 tons of agricultural limestone and road stone.

Star performer is an International TD-9, equipped with a dozer shovel. In this underground operation, the TD-9 loads as high as 600 tons of shot rock daily . . . works an area 600 feet wide and 700 feet back.

"Our TD-9 is a real money maker," says Superintendent Norman Searcy. "Maneuverability is the reason we can load so much —and the upkeep costs are very low."

Above ground or below, International power is always a money-maker in quarry operations. Your International Industrial Distributor has facts and figures to back up this statement with actual performance records. See him for the real low-down on International "power that pays."

**INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS**

INTERNATIONAL

INTERNATIONAL HARVESTER

POWER THAT PAYS

...a *Crushing Record* by:
**ED LUNDIN, General Contractor**
**Mankato, Minnesota**
**with his DIAMOND "66"**
**ROTOR-LIFT PLANT**

¾" minus material...

20 to 40% crush...

208 yds. per hr. average!

ED. LUNDIN
GENERAL CONTRACTOR
1616 No. 4TH STREET
MANKATO, MINN.

Diamond Iron Works, Inc.
1728 Second Street North
Minneapolis, Minnesota

Gentlemen:

I could not help but write you to tell you how satisfied we are with our new Diamond No. 66 Portable Rotor Lift Crushing Plant. Last season we were crushing a job for Highway 61 on the north shore of Lake Superior and averaged 208 yards an hour of 3/4" minus material in a pit that contained from twenty to forty per cent crushing. It is our understanding that the records of the Minnesota State Highway Department show that there has never been another job of this nature that has set such a high production. This production was obtained with a minimum amount of down time, and we certainly wish to let everyone know the success that we have had in using your equipment.

Incidentally, this is the third Diamond Plant that we have operated and all of them have worked out very satisfactory.

We might mention here too that we have worked in most of the gravel pits in the south central, western, and northern sections of Minnesota and have found that we can produce more gravel per hour with our Diamond Plant than most plants of an equal size or larger that have worked in the same pits.

Again we wish to tell you how satisfied we are and if in the future we will require another plant it certainly will be another Diamond.

Yours very truly
Ed Lundin, Contractor
by Edward N. Lundin
Edward N. Lundin

*UPPER LEFT*—Loading some of heaviest pit-run in the state. Note spline-shaft drive, position of power unit. Power unit is easy to get at for inspection and repair.

*BOTTOM*—Dozing pit-run into Diamond shovel-loading hopper. Diamond grizzly and single eccentric plate feeder keep continuous, regulated feed, make record production possible.

**DIAMOND IRON WORKS, INC.**
AND THE MAHR MANUFACTURING CO. DIV.
1756 N. 2ND STREET, MINNEAPOLIS 11, MINNESOTA

Diamond Crushing Plants assure: greater output . . . shorter material flow . . . quicker set-up, knock-down . . . less down time . . . more all-round portability.

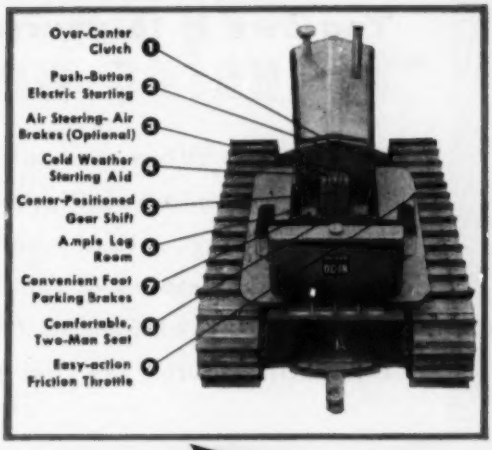
# *Owners' pride . . . Operators' delight*
# *the NEW OLIVER "OC-18"*

**OWNERS** can't say enough good things about the new Oliver "OC-18." They keep telling us how it does more work . . . how that full 133* drawbar horsepower gives it plenty of power for the really tough jobs . . . about its low operating and maintenance costs . . . and how the operators and mechanics like it.

**OPERATORS** are even more enthusiastic. It's the first big tractor they've found that is designed to make life easier for them. They tell us that toward the end of a long day on the "OC-18," they are much less fatigued, much more fit to continue giving top performance. The illustration shows clearly the 9 important "easy operating" features of the "OC-18." No other tractor boasts all these. They make the "OC-18" "the operators' dream come true."

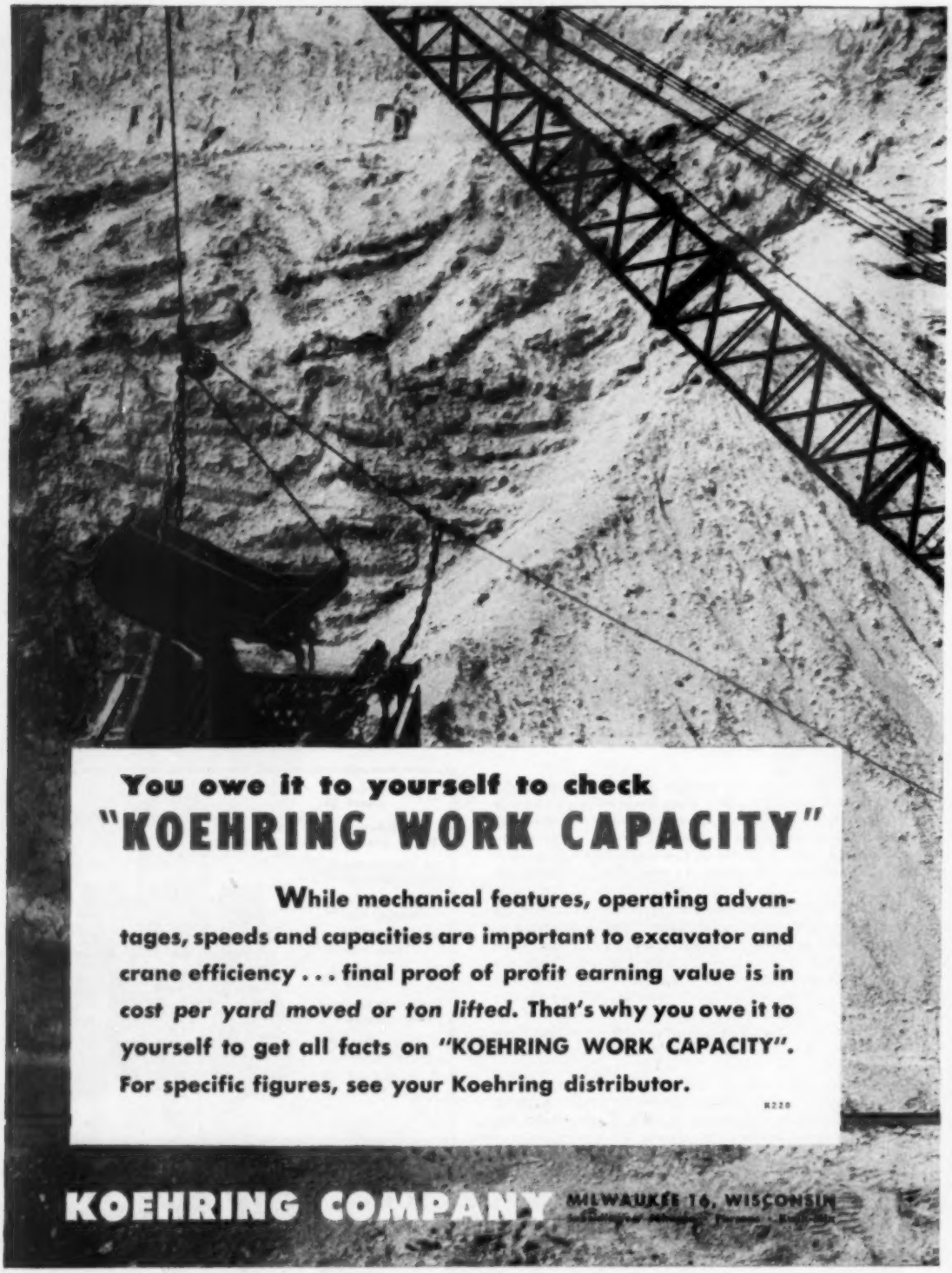
Ask your Oliver Industrial Distributor to arrange a demonstration. Or if you prefer, write to The Oliver Corporation, 400 W. Madison St., Chicago, Illinois.

*OFFICIAL NEBRASKA TEST NO. 489


Over-Center Clutch 1
Push-Button Electric Starting 2
Air Steering- Air Brakes (Optional) 3
Cold Weather Starting Aid 4
Center-Positioned Gear Shift 5
Ample Leg Room 6
Convenient Foot Parking Brakes 7
Comfortable, Two-Man Seat 8
Easy-action Friction Throttle 9

**THE OLIVER CORPORATION**
**400 West Madison Street, Chicago 6, Ill.**

*A complete line of industrial wheel and crawler tractors*



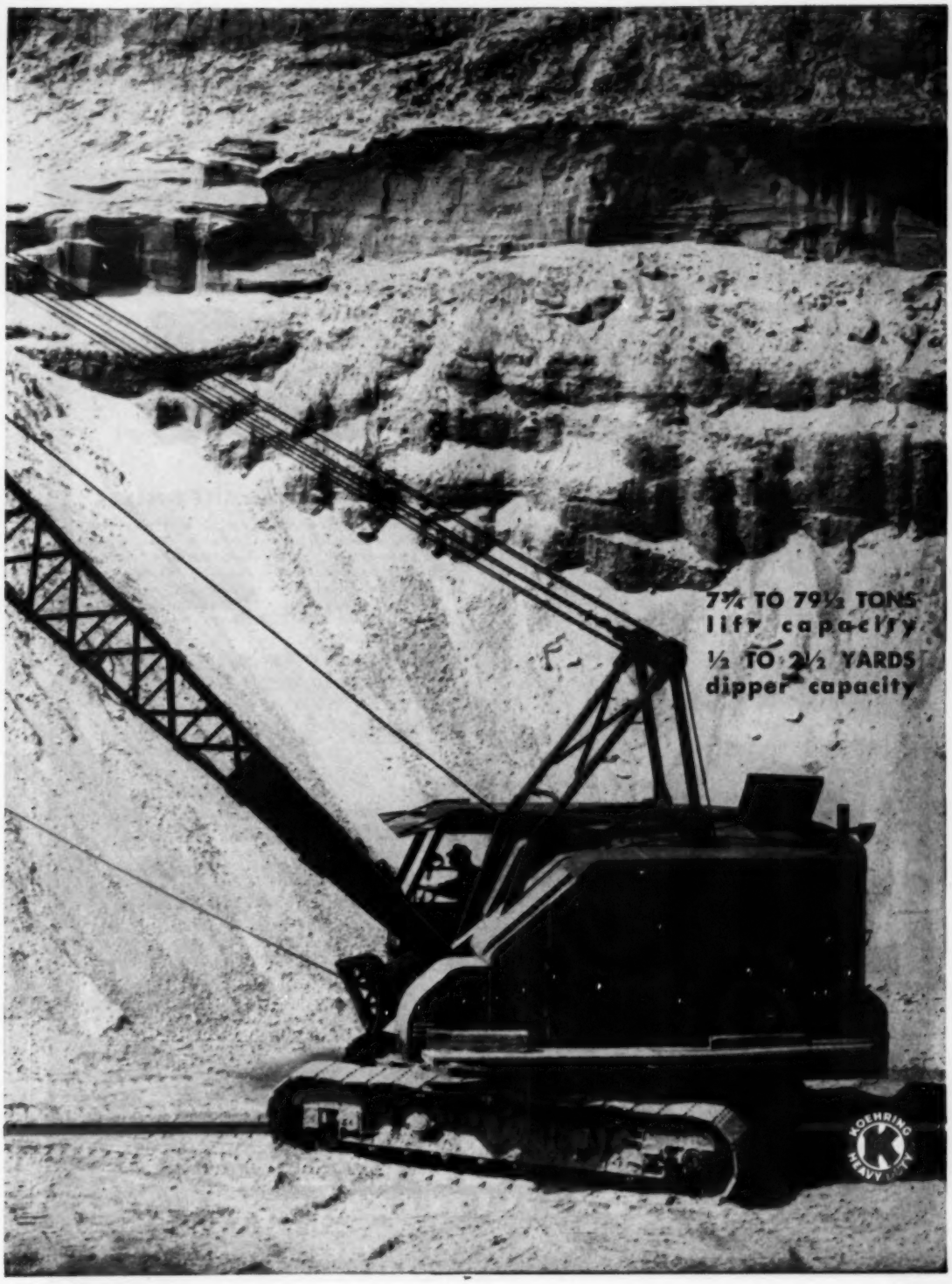
**You owe it to yourself to check**

# "KOEHRING WORK CAPACITY"

**While mechanical features, operating advantages, speeds and capacities are important to excavator and crane efficiency . . . final proof of profit earning value is in *cost per yard moved or ton lifted.* That's why you owe it to yourself to get all facts on "KOEHRING WORK CAPACITY". For specific figures, see your Koehring distributor.**

K220

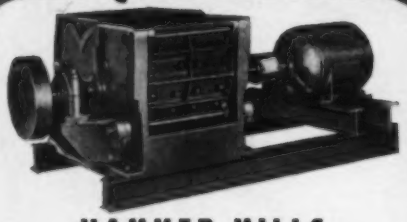
**KOEHRING COMPANY** MILWAUKEE 16, WISCONSIN


7¾ TO 79½ TONS
lift capacity
½ TO 2½ YARDS
dipper capacity
KOEHRING
HEAVY

# Crush It! Grind It Separate It

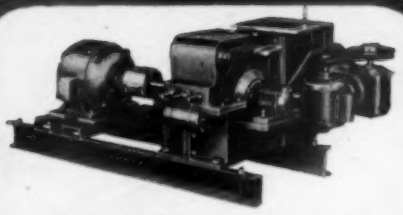
**Do It Better, Faster And At Less Cost With...**

# WILLIAMS



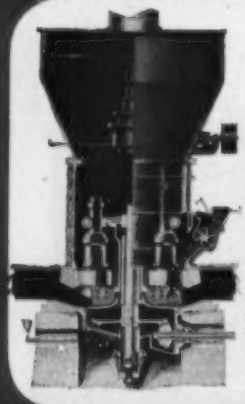
## HAMMER MILLS

For heavy duty crushing or grinding of virtually any mineral or chemical — Williams builds them to do *a complete job in one operation!* Primary and secondary crushers are unnecessary — extra foundations, conveyors, other equipment are eliminated! You can save up to 75% on initial investment — up to 50% on grinding costs with the right Williams Hammer Mill!



## HELIX-SEAL HAMMER MILLS

For cleaner, safer dustless grinding of dry materials — or non-clogging, accurate grinding of wet, sticky or greasy materials — to finenesses of 100 to 325 mesh. Combines the advantages of a hammer mill with closed-circuit screw-type feed. No separators, fans or cyclones required. Available with steam or water jackets. Low investment — inexpensive to install and operate.



## ROLLER MILLS

### WITH AIR SEPARATION

For accurate, uniform pulverizing or blending. Instantly adjustable to finenesses down to 400 mesh, even micron sizes. Dries and grinds simultaneously. Automatic, self-adjusting feed. Many other exclusive engineering and construction features. Williams Roller Mills have set new standards for product quality, output and economy.

## OTHER WILLIAMS EQUIPMENT

- *IMPACT and DRIER MILLS*
- *AIR SEPARATORS*
- *VIBRATING SCREENS*
- *COMPLETE "Packaged" PLANTS For Installation In Existing Buildings*

## *At Your Service*

### WILLIAMS TESTING LABORATORY

Consult Williams on any grinding, crushing, shredding or separation problem, no matter what the material. The most complete testing and research facilities are available without cost or obligation. Simply furnish enough raw material for a test run, and a sample or description of the finished product desired.

WILLIAMS PATENT CRUSHER & PULVERIZER CO.
800 ST. LOUIS AVENUE ST. LOUIS 6, MO.

# WILLIAMS

CRUSHERS GRINDERS SHREDDERS

OLDEST AND LARGEST MANUFACTURER OF HAMMER MILLS IN THE WORLD

# To get the most for your money in a ¾ YARD SHOVEL

## use this CHECK CHART

| SPECIFICATION | BAY CITY Model 45 | Other ¾ Yd. Shovels |
|---|---|---|
| Weight (as shovel) | 46,500 lbs. | |
| Power (std. gas) | 81 HP @ 1200 RPM | |
| Engine Displacement | 517 cu. in. | |
| Shovel Boom | 19′ 0″ | |
| Crowd | One Piece Chain | |
| Digging Radius 45° | 28′ 1″ | |
| Crane Boom (Std.) | 35′ Pin-connected | |
| Crane Capacity, 10′ Rad. | 28,500 lbs. | |
| Hoe Boom | 20′ 0″ | |
| Digging Depth | 19′ 6″ | |
| Bases | Cast Alloy Steel | |
| Crawler Bearing Area | 24″ Shoes—5930 | |

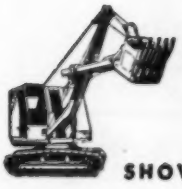
Yes, a comparison of the brief, essential specifications listed here will prove that dollar for dollar the BAY CITY heavy-duty ¾ yard Model 45 is the biggest value in excavating and material handling equipment. This is only part of the story — consider the design features for full convertibility — keep in mind the operating advantages that assure snappy swing, quick control, easy operation and fine balance. Make your comparison NOW, then ask for catalog. BAY CITY SHOVELS, INC., Bay City, Michigan.

## WRITE for this CATALOG

*Get this 20 page catalog, packed with pictures of parts, assemblies and jobs illustrating the big value built into this ¾ yard crawler machine. It's yours for the asking.*




214



# BAY CITY

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

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EXPLOSIVES

# AMERICAN EXPLOSIVES

You can get quick deliveries of AMERICAN explosives and blasting supplies from our well located plants and distributing magazines. The AMERICAN line includes explosives exactly suited to your requirements—produced under intensive research, close chemical control, and unremitting care in manufacture. Always specify AMERICAN.

*Capable Field Engineers*
*Are Available At Your Call*

***High Explosives *Permissibles**

***Blasting Powder *Blasting Accessories**

AMERICAN *Cyanamid* COMPANY
EXPLOSIVES DEPARTMENT
30 ROCKEFELLER PLAZA • NEW YORK 20, N. Y.

*Sales Offices: Pittsburgh, Pa. • Bluefield, W. Va. • Scranton, Pa. • Chicago, Ill. • Pottsville, Pa. • Maynard, Mass.*

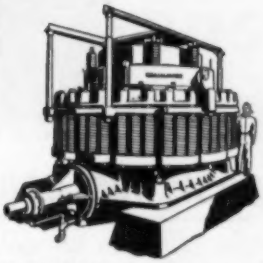
# "Threads of Gold"
## for a
# ROMAN TOGA

The mineral *Chrysotile,* meaning golden fibers, or threads, supplies over 90% of the world's asbestos requirements. Called the "miracle mineral" by the ancients, the Roman naturalist Pliny (23—79 A.D.) refers to the use of such material as "a rare and costly cloth" used for the funeral garments of kings.

The secret of the great usefulness of asbestos lies in its unique combination of fibrous structure, fire and water resistance, flexibility and strength. Since the profitable recovery of asbestos fiber depends upon fine crushing without destroying fiber length, a crusher that will perform such functions economically, and will produce large quantities of finely crushed material, is essential.

Proof of the world-wide acceptance of *"SYMONS"* Cone Crushers in asbestos production is found in the field, where practically every major producer employs these high capacity, economical machines . . . *as in all of the great ore and industrial mineral operations the world over.*

**NORDBERG MFG. CO., Milwaukee, Wisconsin**



*"SYMONS"* Cone Crushers . . . *the machines that revolutionized crushing practice* . . . are built in Standard, Short Head, and Intermediate types, with crushing heads from 22 inches to 7 feet in diameter—in capacities from 6 to 900 tons per hour. C252

"SYMONS" Primary Crushers

Grinding Mills

Mine Hoists

"SYMONS" Vibrating Bar Grizzlies and Screens

Diesel Engines

*"SYMONS"* . . . *A NORDBERG TRADEMARK KNOWN THROUGHOUT THE WORLD*

NORDBERG

MACHINERY FOR PROCESSING ORES and INDUSTRIAL MINERALS

NEW YORK • SAN FRANCISCO • DULUTH • WASHINGTON • TORONTO

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# It's designed especially for top kiln performance!

TAKE a close look at Permanente Periclase-Chrome bricks for rotary cement kilns and you'll find they cut down-time for replacements to a minimum—give you higher production. That's because they are *developed especially* for hot zone linings.

Their special design combines high purity, pre-shrunk periclase grains with an *exclusive* patented bonding medium. Result: a kiln lining of maximum refractoriness with high resistance to chemical attack by cement clinker.

Verified performance records show that Permanente Periclase-Chrome brick have withstood as many as *17 shutdowns for various causes without any loss of brick due to spalling*. They take a good coating, hold it well, and have great resistance to thermal shock.

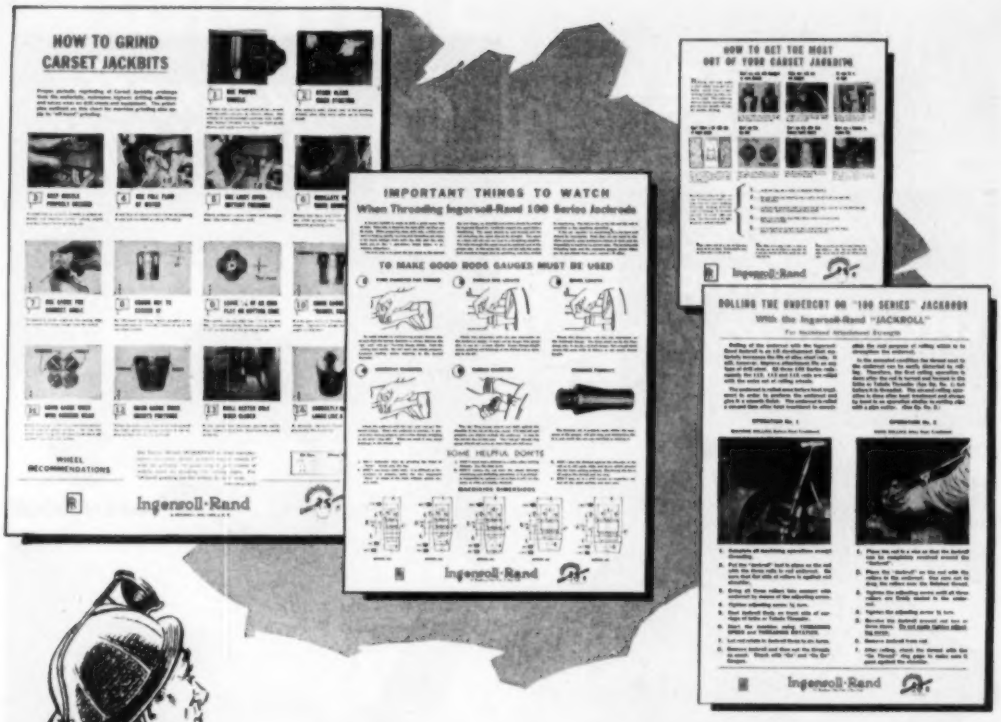
If you feel that an appraisal of your rotary kiln performance would be helpful, Kaiser Chemicals will be glad to work with you. Installation assistance also is available at no extra cost.

Standard brick sizes supplied in both burned and chemically bonded forms. Recently expanded facilities insure superior service. Call or write principal sales offices: *Chemical Division*, Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, California. First National Tower, Akron 8, Ohio.

**Kaiser Chemicals**

Pioneers in Modern Basic Refractories

*Basic Refractory Brick and Ramming Materials • Dolomite • Magnesia • Magnesite • Alumina • Periclase*


HOW TO GRIND
CARSET JACKBITS
IMPORTANT THINGS TO WATCH
When Threading Ingersoll-Rand 100 Series Jackrods
TO MAKE GOOD RODS GAUGES MUST BE USED
SOME HELPFUL DONTS
HOW TO GET THE MOST
OUT OF YOUR CARSET JACKBITS
ROLLING THE UNDERCUT ON "100 SERIES" JACKRODS
With the Ingersoll-Rand "JACKROLL"
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## Get more* out of your

# CARSET JACKBITS

## by using these *free* WALL CHARTS

* *To get maximum drilling speed and longest bit life you should use Ingersoll-Rand Carset Jackbits as indicated on these charts.*

■ Nothing will make a shift easier or help you get in a better round quicker than fast-drilling Carset Jackbits. To help you make sure that your Carset Jackbits are used to best advantage, Ingersoll-Rand has prepared these four large, easily read charts for your bit-shop wall or bulletin board. They give simple illustrated directions for using and servicing Carset Jackbits and threading 100 Series Jackrods.

You'll find these charts a big help in showing your drilling crews and shop personnel how to get the most out of longer-lasting, faster-drilling Ingersoll-Rand Carset Jackbits. To get your free copies, call your nearest Carset Jackbit supplier or fill out and return the coupon.

**Ingersoll-Rand** 7B6-15
Rock Drill Dept., 11 Broadway, New York 4, N. Y.

Please send me, free of charge, the wall charts checked below:

- ☐ Grinding Carset Jackbits, Form 4121
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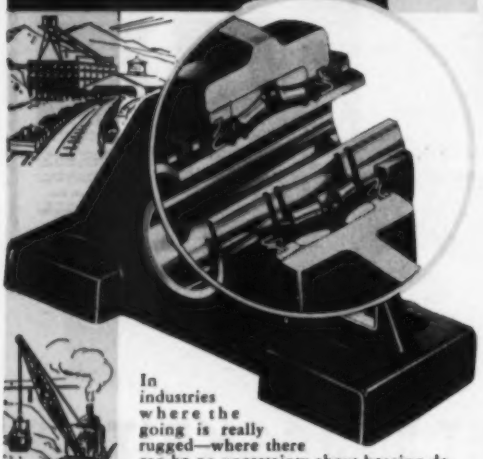
SPECIFY *Tougher* SHAFERS



In industries where the going is really rugged—where there can be no uncertainty about bearing dependability, Shafer ConCaVex Bearings get the call. In fact, Shafer Bearings have faithfully served practically every heavy industry for over 3 decades. Add up these advantages and you'll see why:

**Self-Aligning • Free Rolling Action • Full Radial-Thrust Load Capacity • High Reserve Shock Capacity • Self-Centering "Z" Housing Seal • Micro-Lock 12-Point Adjustment • Sizes and Mountings for All Applications.**

Feature for feature—dollar for dollar you get more when you specify Shafers.

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SELF-ALIGNING
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INDUSTRIAL • AIRCRAFT

**SHAFER BEARING CORPORATION**
801 BURLINGTON AVE.
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# *Automatic* SAFETY HOOK

OPEN HOOK

SAFETY LOCKED

## *It's* EVANSTEEL

The very latest type of Safety Hook made of super-strength alloy steel with tensile strength of 125,000 psi. Due to the self-locking feature, the instant the load is applied, the hook closes and locks automatically. Load is carried entirely by a socket on the interior of the bail, into which the hook engages . . . no heavy load stress on pin bolt. Hook knob remains seated in socket as long as load is applied, no matter how slight. When load is released, hook readily unhooks.

*For safe, fast handling of cable loads, use EVANSTEEL Automatic Safety Hooks . . . available in capacities of 2 tons and up.*

**CHICAGO STEEL FOUNDRY CO.**
Kedzie Avenue and 37th Street • Chicago 32, Illinois
*Makers of Alloy Steel for Over 40 Years*

# THE CONCRETE MANUFACTURER

A SPECIAL SECTION OF PIT AND QUARRY

## because it's RIGHT!

Yes, the GOCORP "King" is tops in each area in which it operates. That's because the blocks it makes are so superior, and are produced at a cost less than ordinary blocks. Here's a machine that represents the best and latest thinking of men with a lifetime of experience in this field. Block plant owners who have investigated, like the owner of this typical "King" operation, recognize these advantages GOCORP offers:

- Hydraulic "sequence operation"—for high quality blocks, low maintenance.
- Vibrating mold filled directly from main supply hopper—no feed drawer.
- Intense vertical vibration, combined with pallet-to-mold clamping, assures compact, uniform units.
- "Tomorrow's machine today"—removes obsolescene risk.

These are only a few reasons why the GOCORP "King" rules. If you want three or four cycles per minute—six blocks per cycle—with one operator—simultaneous production of two sizes, if desired—write for further details on the "King" and name of our representative near you.

GO CORP
ADRIAN-MICH.

SEE US AT CONCRETE INDUSTRIES EXPOSITION — BOOTHS 67 THRU 71

# Your BEST ASSURANCE

## OF UNIFORMLY HIGH QUALITY MORTAR

5,293 barrels of LONE STAR MASONRY CEMENT were used on $9.5-million, 10-story, 500-bed Veterans Administration Hospital, New Orleans, in laying up all brick, block and stone—typical of widespread use of this high-quality mortar in structures, large and small.

**VETERANS ADMINISTRATION HOSPITAL**
New Orleans

Supervision:
**U. S. CORPS OF ENGINEERS, NEW ORLEANS DISTRICT**

General Contractor:
**ROBERT E. McKEE,** Dallas, Texas

Architects & Engineers:
**FAVROT, REED, MATHIS & BERGMAN,** New Orleans
**FAULKNER, KINGSBURY & STENHOUSE,**
Washington, D. C.

## On Large Structures or Small, Lone Star Masonry Cement Assures Quality plus Economy

● Produced to exacting Lone Star Standards, under rigid laboratory control throughout the manufacturing process, LONE STAR MASONRY CEMENT greatly simplifies the problem of obtaining uniformly high quality mortar:

One ready-to-use cementing material instead of two means greater uniformity from batch to batch;

One less cementing material to handle . . . no lime or Portland cement to add . . . no soaking or slaking;

Extra workability and plasticity due to exceptional water retention . . . brick and block bed easier, minimum droppage, smoother work schedules;

Soundness, low absorption, high water repellency . . . durable, weather-resistant performance.

***Write for this New Book***

Write for this new illustrated Masonry Booklet, full of timely, useful information. Address Lone Star Cement Corporation, 100 Park Ave., New York 17—or nearest office, listed below.

LONE STAR CEMENTS COVER THE ENTIRE CONSTRUCTION FIELD

# LONE STAR CEMENT CORPORATION

Offices: ABILENE, TEX. • ALBANY, N. Y. • BETHLEHEM, PA. • BIRMINGHAM
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LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 17 MODERN MILLS, 125,600,000 SACKS ANNUAL CAPACITY

The CONCRETE MANUFACTURER January 1953

# Statistics

THIS publication's production estimates, a detailed discussions of which appears in an article beginning on page 243 of this issue, indicate that 1952 was another bumper year for the concrete industries. So far as we have been able to determine through direct-mail questionnaires and other means, the Big Three of the field (block, ready-mix, and pipe) all established new records for production. Output of ready-mixed concrete may have totalled well over 45,000,000 cu. yd., block production soared to somewhere near 1,780,000,000 8- by 8- by 16-in. equivalents, and approximately 11,000,000 tons of concrete pipe was manufactured.

We're somewhat dissatisfied with the cubic yard, the 8-in. equivalent, and the ton as standards of measurement for our industries, because we rather seriously doubt if even in the trade itself these units present any recognizable picture of total product output. Who, for example, has frequent first-hand experience with a cubic yard as a measure of volume? Even if the material under consideration is cork, about as light a solid as most people have any acquaintance with, a cubic yard tips the scales at over 400 lb., while the same volume of concrete may weigh as much as 4,750 lb.

The 8- by 8- by 16-in. equivalent is similarly unsatisfactory as a means of visualizing block output. In fact, the term itself creates some confusion since it is largely a fictitious unit of measurement necessitated by the circumstance that the product is manufactured in many shapes and sizes. So far as we can find out, nobody in the industry has succeeded in actually producing an 8-in. equivalent.

Nor is the ton our notion of a happy inspiration as a means of measuring the production of concrete pipe. Here, as in the block field, the tremendous size-range of the product poses a serious problem, and a weight standard was adopted as the easiest, although not necessarily the best, solution. When it comes right down to a question of visualizing statistical units, we believe it would be much easier to cope with, say, a ton of anchovy paste than with a ton of concrete pipe.

In the resulting dilemma, anyhow, one is almost compelled to join the "let's put everything end-to-end" school of statistical reporting. We aren't downright enthusiastic about this devious approach to the problem, but we believe it has some merit. When applied, for example, to the relatively meaningless figure of 45,000,000 cu. yd. of ready-mixed concrete, the end-to-end method reveals that the 1952 output of the ready-mix industry was enough to have built 12,784 miles of two-lane concrete pavement 9 in. thick. Those of our readers who wish to know how many times that amount of pavement will span the distance between Perth Amboy and the west exit of the Lincoln Tunnel are welcome to figure it out for themselves.

Instead of putting the 1,780,000,000 concrete masonry units end-to-end, we've assembled them into single-story basementless two-bedroom homes having about 1,000 sq. ft. of floor area. Presto! We have 1,881,606 homes—about twice as many as the total actually built. If the 11,000,000 tons of concrete pipe produced in 1952 had all been 21 in. in diameter, it would amount to approximately 22,000 miles of pipe, or very nearly enough to encircle the earth at the equator.

We're not seriously urging that any change be made in the units employed for reporting the statistics of the concrete industries, since we recognize that their primary function is to serve as a comparative rather than as a definitive scale of production. This department will be glad to take over the responsibility of now and then reducing the statistics to lighter terms.

William M. Avery

# Spend 4 Profitable and Inspiring Days at the NCMA CONVENTION

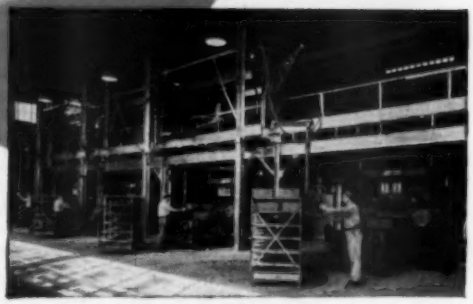
## Cleveland-January 26, 27, 28, 29·1953

Both the Concrete Industries Exposition and NCMA Convention Sessions will be held at the Cleveland Civic Auditorium

**Hear the Results of the Concrete Masonry Investigation at the Research Foundation of the University of Toledo . . . . Sponsored by the BESSER Company and others.**

Concrete Products Producers from all over the nation are planning to go to the Concrete Industries Exposition and NCMA Convention at Cleveland. They will have the opportunity to visit a Research Laboratory which was actually taken from the University of Toledo and placed upon the floor of the Cleveland Auditorium by the Besser Manufacturing Co.

At the Besser Exhibit, you will receive a liberal education on the very latest methods for producing premium block which can be assembled into the most durable and attractive walls. You will be able to operate research laboratory equipment such as a Microscopic Micrometer for viewing the walls and learning first-hand how to materially reduce or entirely eliminate shrinkage cracking of walls. You will be able to rub elbows with many other successful block manufacturers. So plan to attend this all-important exposition and convention.



**Visit This Modern 4 Vibrapac Plant**

Conventioneers will be given the opportunity to visit the modern plant of the Cleveland Builders Supply Company where they will see four Front Pallet Feed Vibrapacs in operation. Besser will provide busses to take you to and from the plant. There will also be busses to the Charles Svec plant, where the latest model Vibrapacs are installed.

## What to do . . . at Cleveland

- Learn How to Prevent Shrinkage Cracking in Walls.
- See Block Compression Testing Machines in Operation.
- Inspect the New Besser Hydraulic Block Splitter.
- See Displays of Beslite, Acrow Centers and Soffit Block.
- Get the Latest on Genuine Besser Replacement Parts.
- Examine New Besser Sales Helps for Vibrapac Plants.
- Visit Besser Vibrapac-equipped Plants.

**BESSER SALES HELPS for VIBRAPAC PLANTS**

At the Besser Exhibit you will see cooperative advertising service available to Vibrapac Plants: 64 Page Plan Book of Block Masonry Homes . . . Series of Newspaper Ads . . . Mats and electros for Advertisements . . . Radio Script . . . Book Matches . . . 16mm. Movie Films . . . Literature on Standard Building Units, Soffit Block, Acrow Centers, Beslite, etc. If you find it impossible to attend the NCMA Convention, write the Besser home office. We'll gladly mail you samples of Besser Cooperative Advertising and explain how it will help you to step up your sales.

# BESSER

*Complete Equipment for Concrete Products Plants*

**BESSER MANUFACTURING COMPANY • ALPENA, MICHIGAN, U. S. A.**

# news of the concrete industries

## 49th Annual A.C.I. Meeting Scheduled at Boston For February 17-19

The American Concrete Institute will hold its 49th annual convention at the Statler Hotel, Boston, Mass., from February 17 to 19, 1953. The three-day meeting will begin with consideration of new or revised standards and special publications and a showing of two new films on concrete work now being completed. A general session on the opening day will include papers on foundations, research and developments in concrete, specifications, and specialized use of concrete. In the evening a number of motion pictures on concrete will be shown.

On the following two days sessions will be devoted to vibration of concrete, design problems and methods, thin-shell precast concrete, and general problems relating to uses and durability of concrete.

The annual research session will review current research projects and report on their progress. A panel discussion emphasizing practical problems in concrete and their solution will conclude the formal sessions.

According to Henry L. Kennedy, general chairman of the Northeast Section of A.C.I., in addition to the technical meetings, a ladies' committee under Mrs. Howard Simpson is preparing extensive plans for the entertainment of wives of members attending the meeting. This will include trips of historical and cultural interest in Boston. One of the highlights of the convention will be a lobster dinner sponsored by the local Northeast Section of the Institute.

## Ohio Operators' Short Course To Be Held January 21-23

On January 21, 22, and 23 a short course will be sponsored by the Ohio Ready Mix Concrete Association and the engineering department of the University of Toledo, sessions to be held at the university. Operators of ready-mixed concrete plants will have an opportunity to attend courses covering approximately the same topics as those presented at the 1952 short course.

Speakers and instructors will include the following: Professor E. Saxer, University of Toledo; H. F. Kriege, France Stone Co., Toledo; E. W. Commings and J. F. Barbee, Ohio State Highway Department; E. M. Brickett, Swampscott, Mass.; N. Wagner, Portland Cement Association, Chicago; W. E. Dickinson, Calcium Chloride Institute; and Lewis Hubbard, Cleveland.

## Concrete Pipe Co. of Ohio To Enlarge Sandusky Plant

Russell J. Dann, manager of the Concrete Pipe Company of Ohio at Sandusky, Ohio, has announced plans for the enlargement of the plant to care for an increased volume of business in 1953. With the construction of the big Ohio turnpike in 1953, company officials anticipate an increasing demand for larger sizes of concrete steel-reinforced drainage pipe.

Mr. Dann cited the growing trend in the use of the steel-reinforced concrete pipe by farmers for drainage and sanitary purposes. This pipe is also used for well casings when farm wells must be driven deeper.

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A new ready-mixed concrete plant has begun operation in Rogers, Ark., belonging to a recently-formed company, Concrete Inc. John VanWay, Helen VanWay, and John Owen are the major stockholders.

## Successful 3-Day Meeting Of Pipe Makers in Miami Draws More Than 100

A three-day meeting (November 13, 14, and 15) of the Southeastern Concrete Pipe Association held in the Emerald Isle Hotel, Miami Beach, Fla., was described as highly successful, with more than 100 persons in attendance.

Exponents of Florida hospitality during the meeting were Ivy H. Smith, the Sherman Concrete Pipe Company, president of the American Concrete Pipe Association, and Gordon Williams and John Lowe of the Associated Concrete Pipe Company of Florida. It was reported that despite the distractions of water sports and beautiful scenery the members accomplished much important work.

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A practical demonstration of the use of a firm's own concrete masonry is seen in the new wing recently added to the Concrete Products Company's plant at Charleston, S. C. Constructed of Dura-Blox, the addition houses six offices and makes available for display purposes space in the original building which was formerly used for offices.

## Coming Events

*January 25-29, 1953 — Cleveland.* 33rd annual convention and exhibit, National Concrete Masonry Association, Public Auditorium.

*February 1-4, 1953 — Chicago.* Annual convention and show, Mason Contractors' Association of America, Inc., Sherman Hotel.

*February 9 and 10, 1953—Toronto, Canada.* Fourth annual convention, National Concrete Products Association (Canada). King Edward Hotel.

*February 9-11, 1953—Boston.* Annual meeting, American Road Builders' Association. Hotel Statler.

*February 17-19, 1953 — Boston.* Annual convention, American Concrete Institute. Statler Hotel.

*February 23-26, 1953—San Francisco.* 23rd annual convention, National Ready Mixed Concrete Association. Hotel Fairmont.

*February 25, 1953—Dallas.* Fourth annual convention and meeting, American Concrete Pressure Pipe Association. Baker Hotel.

*February 26, 1953—Dallas.* Third annual convention and meeting, American Concrete Agricultural Pipe Association. Baker Hotel.

*February 26-28, 1953 — Dallas.* 45th annual convention and meeting, American Concrete Pipe Association. Baker Hotel.

## Exchange Panel a Feature Of Annual Convention Of Mason Contractors

According to plans now in progress for the convention-exhibit of the Mason Contractors Association of America, scheduled for February 1 to 4, 1953, a most interesting program is in the making.

All sessions will be held at the Sherman Hotel in Chicago. There will be a series of forums and an exchange panel at which mutual problems of the M.C.A.A. and the National Concrete Masonry Association will be discussed.

Serving as moderator of the exchange panel will be Benjamin Wilk, Standard Building Products Co., Detroit, a past president of N.C.M.A. Others participating include John Strandberg, another N.C.M.A. past president, Concrete Building Units Co., Kansas City, Mo.; Ralph Condo, James Condo & Sons, Sommerville, N J., an N.C.M.A. member; William E. Tucker, M.C.A.A. research board chairman, Richmond, Va.; and H R. Nemec, M.C.A.A. member, Cleveland, Ohio.

During the N.C.M.A. convention in Cleveland this month this panel, with William Nelson, M.C.A.A. president, as moderator, will appear on the program in a discussion of concrete masonry problems.

## A.R.B.A. Annual Meeting Scheduled for February 9-11

Boston will be the setting for the American Road Builders' Association's 1953 annual meeting from February 9 to 11. Sessions will be held at the Hotel Statler.

The newest developments in road building, maintenance, and administration; talks by nationally known speakers; panel sessions and discussions; and technical committee meetings are scheduled. Seven active A.R.B.A. divisions will participate. Members are urged to make hotel reservations promptly.

## Lock Joint Pipe Company Builds Plant in Arkansas

Construction of a new pipe plant near Van Buren, Ark., was announced by officials of the Lock Joint Pipe Company of East Orange, N. J., to produce pipe for the water line linking Lake Fort Smith with Van Buren.

Operation of the new plant will be under the supervision of G. V. Parsons, who recently returned from the Middle East, where he managed a plant for Lock Joint.

Operating plants in many parts of the world, Lock Joint manufactures prestressed concrete cylinder pipe under a new process.

## Control of Toronto Pipe Firm Acquired by Paving Concern

In a statement released to the Toronto (Canada) press, G. G. Robinson, president of Standard Paving & Materials, Ltd., has acquired a substantial controlling interest in Concrete Pipe, Ltd., at a cost of $945,280.

Concrete Pipe manufactures concrete sewer pipe at plants in Toronto and Woodstock. Its output has been marketed by Consolidated Sand & Gravel, Ltd., one of Standard's subsidiaries, under a sales agency agreement since 1929.

## Concrete Masonry Homes Book Well Received by Public

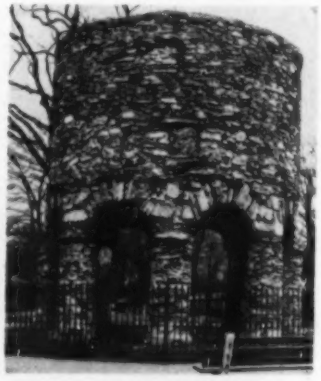
Last year the National Concrete Masonry Association initiated a campaign to promote wider use of its new plan book *Concrete Masonry Homes of Today and Tomorrow*. Since that time ads have been placed in *Small Homes Guide, House and Garden's Annual Book of Building, Better Homes and Gardens,* and *Ladies Home Journal*.

Results have been very encouraging. More than 6,000 copies of the plan book have been purchased by readers of these publications since the beginning of the campaign—a clear indication that the public is definitely interested in concrete masonry construction. Undoubtedly the campaign has also resulted in greater sales for producers in the home construction market.

## New Granite Veneer Slabs Developed by Minnesotan

"Gran-A-Stone" is the trademark of a new product developed by Leon Schlough of St. Cloud, Minn. Colored granite is crushed, processed, and molded into slabs of various sizes. After curing, the slabs are spit into veneer by hydraulic pressure.

The Minneapolis Gran-A-Stone Co., organized by Vernon Discher, has been named distributor for the product in the Minneapolis-St. Paul area.



• At Newport, R.I., a historic landmark, the Old Stone Mill, has been making news. The ancient structure, whose origin is shrouded in mystery, was observed to be in danger of gradual disintegration, as the mortar holding its stones together began crumbling. Royal Sterling, president of Cinder Products Corp., and Frank Sterling of the Silicone Water Proofing Co., Providence, came to the rescue. They donated a weather-and-waterproof coating, "Silacoat", for which they are distributors, and personally supervised its application to the tower. One coat of the water-repellant preparation, which has a silicone base, is considered effective for at least eight years.

## Machinery Firm's Exhibit Will Show How to Solve Shrinkage Crack Problem

At least one of the major exhibits at the Concrete Industries Exposition in Cleveland starting January 26 will undertake to show conclusive evidence that the cracking of concrete masonry walls due to shrinkage can be controlled. According to word from the Besser Manufacturing Co., a considerable portion of the firm's exhibit space at the forthcoming machinery show will be used to demonstrate various approaches to the problem of eliminating, or substantially reducing, wall cracks caused by the shrinkage of concrete masonry units.

The company's plans call for the construction of six "wallettes" right on the exhibit floor, each designed to show a different approach to the problem. One wall will be built with air-dry units, another with standard autoclaved units, and others with blocks which have higher resistance to tensile stresses as a result of having thicker face shells or incorporating stronger concrete. The exhibits will also show the use of wire reinforcing in the mortar joints, as well as the Toledo slide joint method involving free-floating wall panels surrounded by control joints.

An interesting part of the display will be two Microscopic Comparators which will enable visitors to see cracks which are invisible to the naked eye. They will also provide a means of visual measurement of the wider cracks which occur in wet blocks. In addition to the Comparators many types of equipment for testing concrete will be on display, and there will be expert concrete technicians on hand at all times to answer questions.

## Australian Pipe Firm Seeks New Ideas on Accounting

According to the *Monthly News Letter* of the American Concrete Pipe Association, Angus V. Richardson, chief accountant, Humes Limited, P.O. Box 4534, Melbourne, Australia, desires to compare accounting systems with American concrete pipe manufacturers in order to work out an ideal system.

The Humes Limited staff has studied this field for some years, and doubtless would have much valuable information to impart. Correspondence should be addressed directly to Mr. Richardson.

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At Pratt, Kans., a husband-and-wife partnership—Vic and June E. Baum of Great Bend—is operating the community's first ready-mixed concrete plant. Mr. and Mrs. Baum also are the owners of the Construction Service Company of Great Bend.

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J. A. Jardine, formerly president of the Concrete Sectional Culvert Company of Fargo, N. D., died on September 15. He had been engaged in the concrete pipe business since 1914 and established plants at Fargo, Grand Forks, and Devils Lake in North Dakota.

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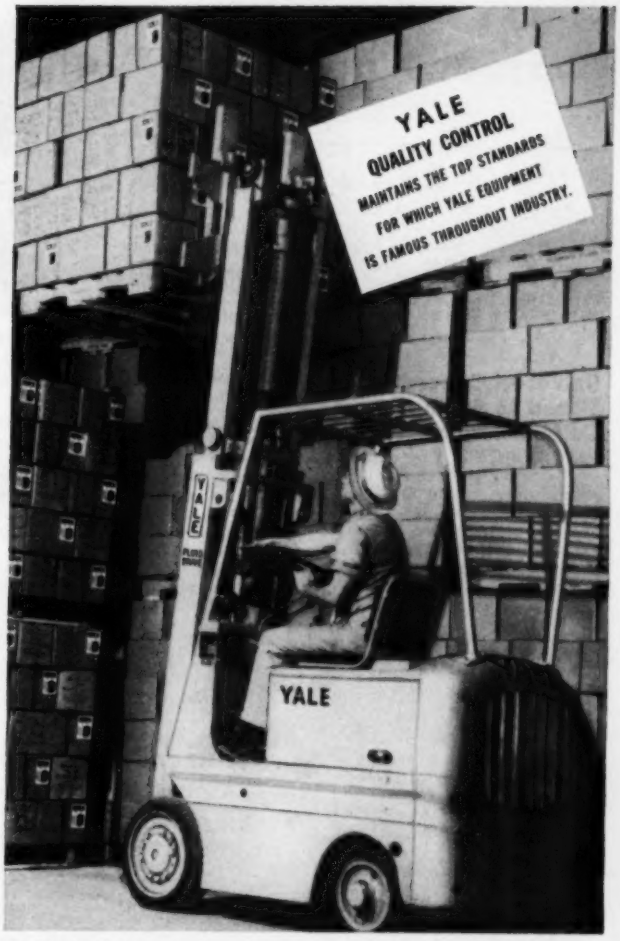


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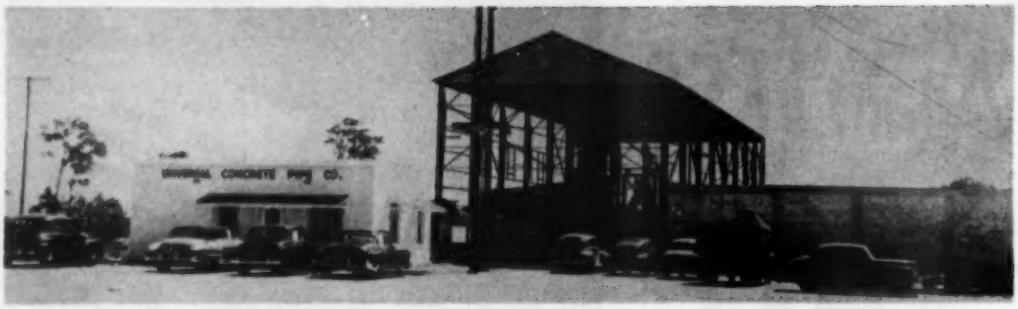

The new plant of the Universal Concrete Pipe Company at Miami, Fla., which goes into production this month.

## Universal Concrete Pipe Slated to Begin Operation Of Miami Plant in January

The Miami, Fla., plant of the Universal Concrete Pipe Company, under construction since April, 1952, will be ready to begin operations in January, according to H. X. Eschenbrenner, president.

Located at 1525 Stirling Road, Dania, the Miami operation is expected to service conveniently the area of southern

W. M. Lafferty

John A. Harris

Florida below Lake Okeechobee. It will be the twenty-sixth in Universal's network of plants in the East and South. Known as the world's largest producer of concrete sewer pipe and culverts, the firm maintains its home office in Columbus, Ohio, and has facilities in 11 states, including a plant at Tampa, an affiliate in Ocala, and sales offices in Tallahassee and St. Petersburg.

Utilizing the latest types of concrete fabricating machinery (manufactured by Universal's machinery division in Columbus), the Miami plant will be equipped to manufacture plain pipe in diameters of 5 to 30 in. and reinforced pipe from 24 to 120 in. in eight-ft. and longer lengths. In addition, the plant will produce Flexicore floor and roof slabs and other pre-cast concrete products.

The new pipe plant consists of a steel-frame building which houses the manufacturing process and curing rooms of concrete block and Flexicore. Construction has been in charge of W. M. Lafferty, who has been identified with the concrete pipe industry since 1931 with various organizations in Ohio and Kentucky. At one time he was employed in Canada, where he designed and built a concrete pipe plant for National Concrete Products, Ltd., in Toronto. He joined Universal in August, 1952, to supervise construction of the new Miami plant and has been appointed plant manager.

John A. Harris, Florida sales manager, whose headquarters are in the state capital, will be in charge of sales. He has been associated with Universal since 1932 in both production and sales capacities at plants in Ohio and Alabama.

Engineers, architects, contractors, and public officials will get the first view of the plant at a special "open house" scheduled for January 10. In addition to Florida personnel, the following management officials from Columbus will be on hand; H. X. Eschenbrenner, president; H. E. Eschenbrenner, executive vice-president; and T. H. Monaghan, general sales manager.

## Hindustan Concern Formed To Produce Concrete Units

The Hindustan Housing Factory, Ltd., a new private company formed by the Government of India and the Indo-Swedish firm of Basakha Singh-Wallenborg and Sons, was recently announced in *The Overseas Hindustan Times* of Delhi.

The plant, machinery, buildings, and property of the present Government Housing Factory will be leased to the new company; and Basakha Singh-Wallenborg and Sons will lease additional equipment and make available the needed working capital.

Major products of the concern will be foam concrete slabs for roofs, prestressed concrete components, window and door frames, and steel fabrication. Production is expected to begin early this year.

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According to word from William W. Gichner, president of the Gichner Building and Supply Company, Inc., Bowie, Md., a disastrous fire on November 6, 1952, destroyed a large portion of the firm's plant. It was reported that the production of pastel brick, a colored slump brick, will be continued, but that the manufacture of sand-lime brick will not be resumed.

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The Biloxi Concrete Products Co., Biloxi, Miss., has been sold by the former owner, D. G. McBryde, to the Alabama Cement and Tile Co., Birmingham, Ala. H. I. Harris is managing the plant for the new owners.

## Concrete Short Course Scheduled for Feb. 2-4 At Georgia Tech. Institute

The third Quality Concrete Short Course will be held at Georgia Institute of Technology, Atlanta, Ga., from February 2 to 4.

The course is designed to supply up-to-date instruction to the construction industry on the design and control of concrete mixtures, placing, forms, and curing.

There will be two sections in the course, one for ready-mix operators, engineers, architects and contractors; the other for concrete masonry manufacturers.

Among the members of the staff (in addition to instructors from Georgia Tech) will be the following: Stanton Walker, director of engineering, National Sand and Gravel Association, Washington, D.C.; Carl A. Menzel, concrete consultant, Portland Cement Association, Chicago; C. E. Wuerpel, technical director, Marquette Cement Manufacturing Company, Chicago; Frank G. Erskine, managing director, Expanded Shale Institute, Washington, D.C.; and K. P. Billner, president, Vacuum Concrete, Inc., Philadelphia, Pa.

Co-operating agencies for the short course include the American Institute of Architects, the American Society of Civil Engineers, Associated General Contractors, the Georgia Engineering Society, the Georgia Society of Professional Engineers, the Georgia State Highway Department, the National Concrete Masonry Association, the Portland Cement Association, and the Society of American Military Engineers.

Registration fee for the course is $15, which includes all course materials and a banquet. Those interested in the course are urged to make reservations early. Make remittance payable to Georgia Institute of Technology. All inquiries should be addressed to C. H. Taylor, Co-ordinator, Short Courses & Conferences, Engineering Extension Division, Georgia Institute of Technology, Atlanta, Ga.

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Dwight W. Longfellow, co-founder and one of the principal owners of the Cretex Companies, Inc., died on November 28 in Miami, Fla., at the age of 67 years. Mr. Longfellow entered the concrete pipe business in 1917 and built up a thriving industry.

# N.S.G.A.-N.R.M.C.A. Convention Program

## Fairmont Hotel, San Francisco, Feb. 23-26

MONDAY, FEBRUARY 23

Convention events will begin with a meeting of the two boards of directors at the Fairmont, following an 8:30 breakfast. The convention will be formally opened at 2 p.m. with an address by Albert R. Shiely, president of N.S.G.A. Richard K. Humphries, president of N.R.M.C.A., will be the second speaker. Also on the program for Monday will be Frank B. Durkee, director of public works, State of California, who will speak on his work for the state. The last speaker on Monday will be Vincent P. Ahearn, executive secretary for both associations.

TUESDAY, FEBRUARY 24

At the joint session on Tuesday morning Stanton Walker will present his annual report. He will be followed by J. R. Gilbert, U.S. Corps of Engineers, who will speak on the topic *Aggregate and Concrete Specifications*. Louis B. Lundborg, vice-president, the Bank of America, San Francisco, will be the speaker at the joint luncheon on Tuesday.

N.S.G.A. will have a separate operating session in the afternoon. There will be a discussion of heavy-media plants and tests. This will be an informal consideration of production and specification problems peculiar to California. A representative of the Department of Public Works will participate. There will also be a joint session on problems of labor relations, with industry executives taking part. Also scheduled for Tuesday afternoon is a joint session on percentage depletion, with J. Rutledge Hill, chairman of the N.S.G.A. committee on percentage depletion, and John T. Sapienza, N.S.G.A. tax counsel, leading the discussion. The final discussion listed for Tuesday is a round-table on depreciation practices in the sand-and-gravel and ready-mixed concrete industries.

WEDNESDAY, FEBRUARY 25

This day will be devoted to an all-day field trip. Members will tour the Eliot plant of Pacific Coast Aggregates and the Radum plant of the Kaiser Company. Busses will leave the Fairmont at 9 a.m. and return about 5 p.m. Lunch will be served aboard the busses. Ready-mixed concrete plants in the open area will also be visited.

THURSDAY, FEBRUARY 26

In the Thursday morning joint session Vincent Ahearn will present his annual report. The only other feature for this session will be a round-table discussion of merchandising practices in the ready-mix and sand-and-gravel industries.

Separate sessions will be held on Thursday afternoon. Officers will be elected and safety trophies will be awarded. At the N.R.M.C.A. session Stanton Walker will discuss the truck mixer tests which he conducted at the University of Maryland.

Also slated for discussion at some time during the convention are the following: the group insurance program of N.R.M.C.A.; the use of industrial radio facilities; and price, wage, and other controls.

ENTERTAINMENT

There will be no evening functions, as it was felt that members and their wives would prefer to make their own evening plans for their stay in San Francisco. A hospitality room will be open from 5 to 7:30 p.m. each evening at the Fairmont.

Plans have been made by the Rock Sand and Gravel Producers Association of Northern California and the Northern California Ready Mixed Concrete Association for the entertainment of the ladies. These two organizations will be hosts to the ladies at a luncheon to be given in the Garden Court of the Palace Hotel on Monday, February 23. The entertainment feature will be Paul Speegle's impressions of the city, entitled *I Love San Francisco*. After the luncheon the ladies will tour the city in busses.

On Tuesday the ladies are invited (by ticket) to attend the joint luncheon of the two associations. Tours of the Bay Area will be arranged for those wishing them on Wednesday. Thursday's special event for the ladies will be a coffee hour at the St. Francis Hotel (9:30 a.m.), followed by a shopping tour.

A post-convention trip to the Monterey Bay area will be arranged for a limited number. Reservations for this tour must be made in advance.

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Scheduled for January 18-22 at Chicago's Hilton Hotel is the annual convention and exposition of the National Association of Home Builders. Emphasis will be on latest technical developments in home building. It is reported that there will be 400 exhibit spaces, more than half of which had been reserved early in December.

PIT and QUARRY safety award trophy to be given to Fischer Lime & Cement Co., Memphis, Tenn., at the N.R.M.C.A. convention in San Francisco in February. This company won first place in the 1952 N.R.M.C.A. safety contest for Class A companies—those producing more than 100,000 cu. yd. of concrete during the contest period from July 1, 1951, to June 30, 1952. The company operated without a single injury to employees and non-employees, with only two property damages during the contest period.

PIT and QUARRY trophies will also be awarded at the coming N.R.M.C.A. convention to the Morse Sand & Gravel Co., Inc., Attleboro, Mass., winner of the Class B group—companies producing 50,000-100,000 cu. yd. during the contest period—and to Thomas, Bennett & Hunter, Inc., Westminster, Md., winner in Class C competition—companies producing less than 50,000 cu. yd. during the contest year.

According to the Association, 182 companies submitted reports this year, as compared with 157 companies last year; these firms produced 16,131,368 cu. yd. of concrete in the 12-month period.

# Cement Production in 1952 And Prospects for 1953

By WALTER E. TRAUFFER

IN spite of some of the most serious handicaps it has probably ever had to face, the portland cement industry in 1952 set new all-time records in both production and shipments for the sixth consecutive year. Official figures are now available only for the first 11 months of the year, but it seems certain that production was at least 248,000,000 bbl. and shipments at least 249,000,000 bbl. These are increases of about 1 percent and 3½ percent, respectively, over the 1951 record totals and reflect the continued efforts by cement companies to expand their production facilities and to operate them at maximum capacity. Stocks of 6,543,000 bbl. cement at producing plants at the end of October, 1952, the low point of the year, were 6 percent under the low of 6,944,000 bbl. at the same time in 1951 and not far above the record low of 5,668,000 bbl. at the end of October, 1948.

Users of cement know that there were shortages in various localities during the year but none of these shortages apparently was serious or prolonged as far as the ready-mixed concrete and concrete masonry units industries were concerned. It is also generally known that the chief cause of these cement shortages was the epidemic of strikes in the cement industry, which are variously estimated to have cost the industry between 5,000,000 and 10,000,000 bbl. of production. It is interesting to note that the Middle West and the East, where these strikes hit hardest, were also the areas most afflicted with cement shortages. These strikes were particularly serious because most of them occurred during the peak operating months of late spring and early summer.

The output of the cement industry was also adversely affected in various ways by the steel strike, but this also held down the volume of construction and consequently the demand. Other handicaps to production included shortages of freight cars, fuel, equipment, supplies, and labor. These affected various areas differently but on the whole appear to have been less serious than in some recent years.

Our information on the number, location, and duration of the strikes in the cement industry in 1952 is incomplete, but they seem to have been most serious in the Middle West and East, chiefly because one large company operating in those areas had all of its seven plants shut down completely for nine weeks by a strike, both as to production and shipments. Other plants in the East were shut down for as long as seven weeks. One plant in the Southeast was shut down for two weeks.

Had the cement industry been subjected only to the usual handicaps to production, the output could easily have been many millions of barrels higher and shipments similarly higher. The tremendous expansion program which has been going on practically since the end of World War II continued unabated in 1952 in spite of many handicaps. It is estimated that production facilities were increased in that year by about 10,000,000 bbl., of which about 6,500,000 bbl. was new capacity which did not replace equipment retired due to obsolescence. This brings the annual productive capacity of the industry to a new high of about 280,000,000 bbl. There were three new plants built in 1952, and at least 21 others completed major expansion and improvement programs in that year. Dozens of others completed minor programs. Altogether 13 new kilns are known to have been installed and the total cost of all this work was about $60,000,000.

The cement industry's expansion program for 1953 indicates no slackening in the effort to meet the growing demands for its products. Our information, of course, is not complete, but should give a general idea of the vast program being undertaken. One new plant is under construction, and one or two others now in the planning stage may be started on before the end of 1953. At least 23 plants have major improvement programs under way or planned for 1953 completion. Dozens of lesser programs are under way or will be started soon. The above work will include at least 15 new kilns and will increase the capacity of the industry about 11,000,000 bbl., of which about 7,500,000 bbl. will be new capacity not replacing old equipment. The cost of this work will be well over $40,000,000.

An interesting sidelight to the whole cement production picture is the fact that the cement industry has been expanding its facilities steadily for several years in spite of a progressively poorer profit-cost ratio. During 1952 and earlier years, wage rates, the cost of fuel, supplies, equipment, and nearly all other items entering into the cost of cement have gone up sharply. On top of this, producers, in order to meet peak demands, have been forced to operate, at high cost, obsolete plants and equipment which would not be used in normal times, and to push other operating equipment beyond its rated capacity, which is also costly.

The average price of cement at the mill, on the other hand, increased only 1 cent per bbl., from $2.54 to $2.55, in 1952. In 1951 the increase was 19 cents per bbl., from $2.35, or 8 percent. It is generally known that cement prices have lagged far behind those of other building materials, having increased only 47.2 percent from 1926 through 1951. In that period the increased cost of all building materials was 123.6 percent; that of lumber was 244.4 percent.

The cement industry has made every effort to absorb increased costs and has done an excellent job, but there is a limit to what can be done in this direction. In spite of the installation of new and more efficient equipment, the application of labor saving methods, etc., the cost of production keeps increasing more rapidly than prices, with the result that the entire cement industry must operate at a dangerously high break-even point in order to show a profit; and even a moderate falling off in demand from present peak levels would put many companies in the red. Many producers feel that unless the cement industry gets some price relief soon, they cannot justify going ahead with further expansion programs.

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### Washington Products Men Hold Annual Winter Meeting

The twenty-fourth annual winter meeting of the Concrete Products Association of Washington (state) was held at Seattle on December 12 and 13, 1952. Sessions were held at the Construction Center.

Among the topics covered were pollution control projects, precast concrete design, safety problems, the latest developments on tilt-up, and principles of masonry reinforcing. The speaker at the annual dinner was Col. W. D. Lamport, managing director of the port of Seattle.

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Five building material concerns in Erie, Pa., including Cement Mix Concrete Company, Erie Builders Concrete Company, Erie Sand and Gravel Company, Kelley Island Lime and Transport Company, and Ready Mix Concrete Company, have adopted a new Saturday closing policy, limiting their activities to a five-day week.

# Block, Ready-Mix and Concrete Pipe Production Set New Records in 1952

## All Signs Point to Continued High Production Levels in Year Ahead

ALL three major components of the concrete industries—masonry units, ready-mix, and pipe—scored sizable production gains in the year just closed. Block production was up approximately 8 percent, the output of ready-mixed concrete gained about 5 percent, and there were indications that pipe production may have gained as much as 10 percent. In each case the recorded gains moved total productivity to high levels never before attained.

By WILLIAM M. AVERY

Record breaking has become an old story in the concrete industries, each of its major components having shown an unbroken sequence of outstanding production achievements since the wind-up of World War II. Certainly the times have been an important factor in this almost unprecedented history of expansion, but the sustained growth of the concrete industries can not be entirely explained in terms of the general national prosperity. Concrete in all its varied uses unquestionably occupies a far more commanding position in the construction field than at any time in history, and much of this progress has been achieved at the expense of competitive materials.

In the following discussion we will deal separately with each of the three industries, confining our remarks insofar as possible to facts, where facts are available, in preference to advancing mere opinions. The statistical data presented are based on the best evidence available as this issue goes to press, but all of the figures determined by sample studies must be regarded as estimates.

## *Concrete Masonry Units*

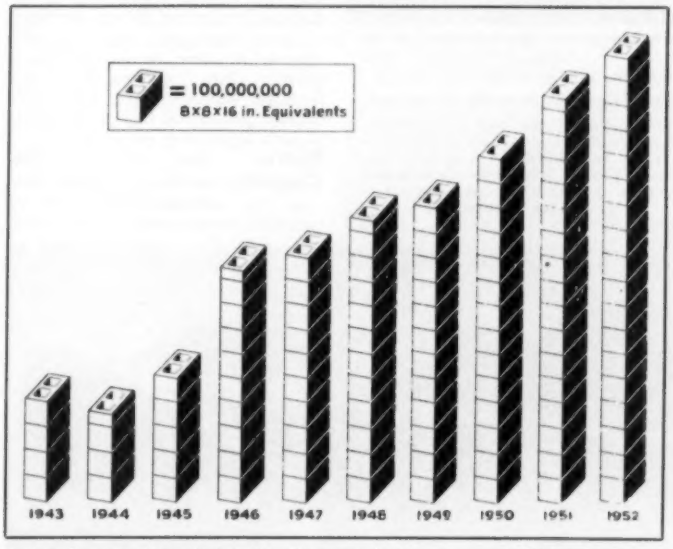
THIS publication's survey of production by the concrete block industry last year indicates total output must have reached a new record high of 1,780,000,000 8-in. equivalents. The figure is based upon estimates of total production for the year supplied by manufacturers in all sections of the country, approximately 15 percent of the industry's apparent total capacity being represented in the final tabulation. In manufacturing some 130,000,000 more units than in 1951, when total output, as indicated by the CONCRETE MANUFACTURER'S survey of a year ago, reached 1,650,000,000 units the block industry scored a gain of almost 8 percent.

Production gains appeared to be well distributed throughout the various sections of the country, with the maximum range running about 4 percentage points; *i.e.* from a gain of 6 percent in the eastern section of the country to approximately 10 percent in the West. The Midwest, with a total output of 628,000,000 units, continued to lead other sections of the nation by a substantial margin.

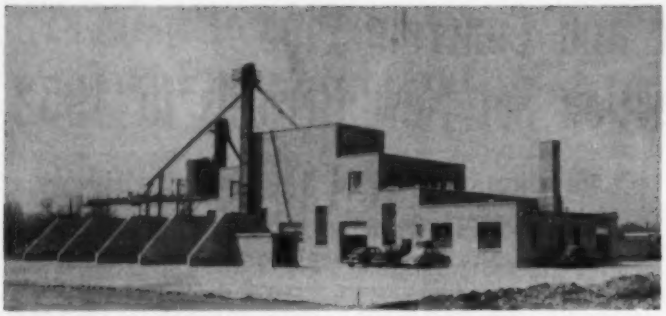
Probably the clearest indication of the survey findings is in respect to the industry's long-range production curve. Relatively large gains of 200,000,000 and 250,000,000 units were scored in 1950 and in 1951 respectively. Although the indicated gain of 130,000,000 units in 1952 is still substantial, it suggests strongly that the initial stage of the long-expected leveling-off process has at last been reached. The curve may continue to climb at a gradual rate for as long as construction volume remains at its present level, but with the industry already accounting for over 70 percent of total masonry wall volume, it seems unlikely that there can be further large gains in this direction.

It should be pointed out that this publication's estimates of annual production in the block industry have for several years been based upon figures contained in the 1947 Census of Manufacturers. That is, we have used the 1947 Census as a reference plane from which we have projected production trends from relatively small samples to arrive at what we hope have been reasonably accurate approximations of the industry's total annual output.

We fully recognize that the method




Each 8- by 8- by 16-in. block in the picture graph above represents 100,000,000 units of estimated production. Thus, for example, the stack of blocks in the 1945 column indicates production in that year of approximately 500,000,000 units.



One of the outstanding new concrete masonry plants of 1952 was erected by Katterjohn Concrete Products at Paducah, Ky. An almost identical plant was completed simultaneously at Little Rock, Ark.

is somewhat open to question, and that it entails a considerable element of hazard, especially when the figures must be, as in the case of our 1952 estimate, projected half a decade. Some time this year the Bureau of the Census will make a new study of the entire concrete masonry industry, and when the results of that study are published, they will presumably include firm statistics on total production in 1952. Thus we will not only have a new base from which to estimate production in future years, but also a much-needed opportunity to check our whole method of working out such estimates.

**Lightweight Units** Lightweight units accounted for approximately 54 percent of the industry's output last year, as compared with about 52 percent in 1951. Most of this relatively modest gain showed up among producers in the Midwest, where the proportion of lightweight units has traditionally lagged. The trend, as indicated by this and earlier surveys conducted by the CONCRETE MANUFACTURER, is toward an equalization of the proportion of lightweight in all sections of the country. If the findings are correct in this particular, the only possible conclusion that can be drawn is that market demands, rather than mere availability of certain materials, are playing an increasingly important part in the division of production between lightweight and so-called heavyweight materials. Although considerably more lightweight aggregate was produced last year than in 1951, there was apparently not a corresponding improvement in the supply situation insofar as it affected block producers. Some of our informants, at any rate, indicated that they could have marketed more units if they had not been limited by the amounts of lightweight material obtainable. It must be remembered, however, that the block industry alone demanded (*and* received) enough lightweight aggregate to produce 70,000,000 *more* lightweight units than it did in 1951.

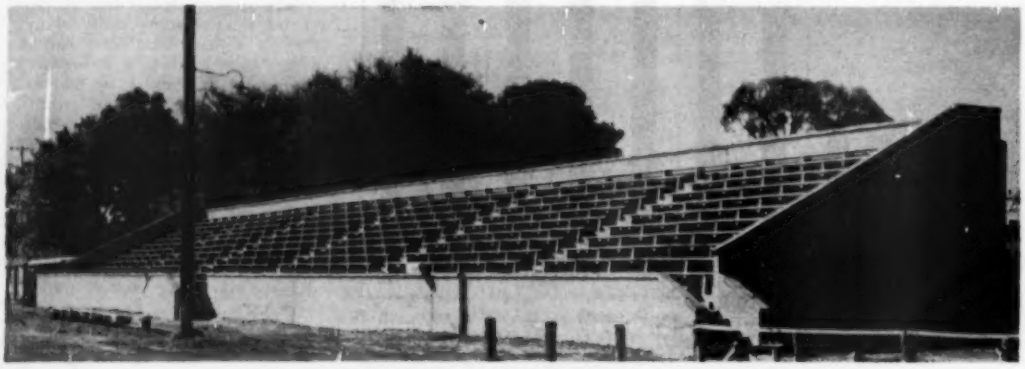
**Cement Shortage** The cement supply situation was one of the brighter pictures outlined by our survey of 1952 production. In response to the blunt question, "Did you lose production this year due to the cement shortage?" 71 percent of all replies were in the negative. This compares with a 70 percent showing on the same question asked a year ago in respect to 1951 production. Replies to a related question regarding the number of units of production lost indicated losses totalling just under 5,000,000 units among producers whose output for the year amounted to approximately 292,000,000 units, or a little less than 1¾ percent. Previous surveys conducted by this publication showed losses of 2.4 percent in 1951, and 5.4 percent in 1950.

Thus it would seem that the effect of cement supplies on the industry's production is decreasing in importance, although in some areas there is still enough uncertainty about shipments to cause a good deal of irritation. On an area basis the Midwest continued to experience the most difficulty, with 44 percent of the replies indicating that the cement shortage was a factor in 1952 operations. The losses reported totalled 2½ percent of total production for the year, as compared with a loss of about 4 percent of output in 1951.

Lost production due to lack of cement was up slightly in the East—from a fraction of 1 percent in 1951 to 1.8 percent in 1952. Cement strikes were possibly a factor in this, but the rise in any case was hardly significant. Western producers estimated their losses at around 1 percent, as compared with 1½ percent in 1951. In the South, where production for the year showed the largest percentage gain, cement supply appears to have caused the least trouble. Only 7 percent of our informants reported losses and these totalled less than a half of 1 percent of their production for the year.

**Hourly Capacity** When we started the practice of sending out annual production questionnaires some years ago, we asked

Still embryonic, the field of prestressed concrete offers a tremendous potential market for machine-made masonry units; prestressed beams in the high school football stadium pictured above are composed of 12- by 8- by 16-in. machine-made masonry units.



producers to tell us their hourly productive capacities in 8-in. equivalent units in order to have some means of judging the scope and caliber of the companies from whom we received replies. Since data of this kind must be dealt with in terms of averages, obviously the findings in any one year will bear little relationship to the findings in any other year unless the same plants are studied—a requirement which we have so far not found it possible to meet.

We report the figures here as a matter of interest, and not with the notion, which we may have imparted in previous reviews, that they actually represent true averages such as might be developed if complete data were available from all components of the industry. For all the companies which supplied data for our most recent survey, average capacity per plant increased from 890 units per hour on January 1 to 935 units per hour on November 1—an increase of 45 units per hour per plant, or about 4½ percent. Corresponding data for the various geographic divisions ran as follows: in the East an increase from 963 to 995 units per hour per plant; in the South from 983 to 1,010; in the Midwest from 832 to 860; and in the West from 695 to 750.

Our survey of a year ago showed an increase of about 9 percent in productive capacity for 1951, or about double the amount indicated for the year just closed. Since gains of approximately 9 percent were also recorded in 1950 and 1949, the abrupt interruption of this uniform pattern in the year just closed may indicate a predominant feeling within the industry that the time has come to taper off.

As indicated by the survey findings, the machines in the block industry must have operated an average of 2,310 hours each, an increase of only 10 hours over the comparable figure for 1951. Operating hours per machine ranged from a low of 2,200 in the East to a high of 2,550 in the South, where the longer construction season is undoubtedly a factor.

**Prices** Among the reporting companies the average selling price of standard 8- by 8- by 16-in. concrete masonry units remained unchanged in the period from January 1 to November 1, 1952. Individual companies reported small fluctuations within the period, but there were enough price *drops* reported to cancel substantially the effect of the relatively few increases shown.

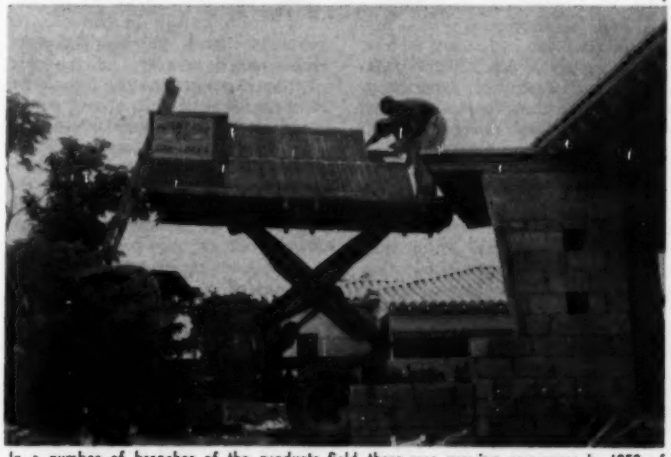
The average price for all companies stood at 19.3 cents per unit on November 1, last year, as compared with 19.1 cents on November 1, 1951, with the small increase apparently occurring within the two-month period for which comparative figures are not available. The lowest prices appear to apply in the East, where the average stood at 18.3 cents per unit on November 1, 1952. For the Midwest the average appeared to be 19.1 cents per unit, for the South 20.1 cents per unit, and for the West 22.4 cents per unit.

**Wages** Wage rates for the reporting group as a whole increased about 8 cents per hr., from $1.29 at the start of the year to $1.37 on November 1. Among the Midwestern group the average increased from $1.41 to $1.49, in the East from $1.28 to $1.34, in the South from $0.93 to $0.97, and in the West from $1.54 to $1.63. As in former years, the returns from the West were on the meager side, and averages computed for that section of the country must accordingly be regarded with some suspicion.

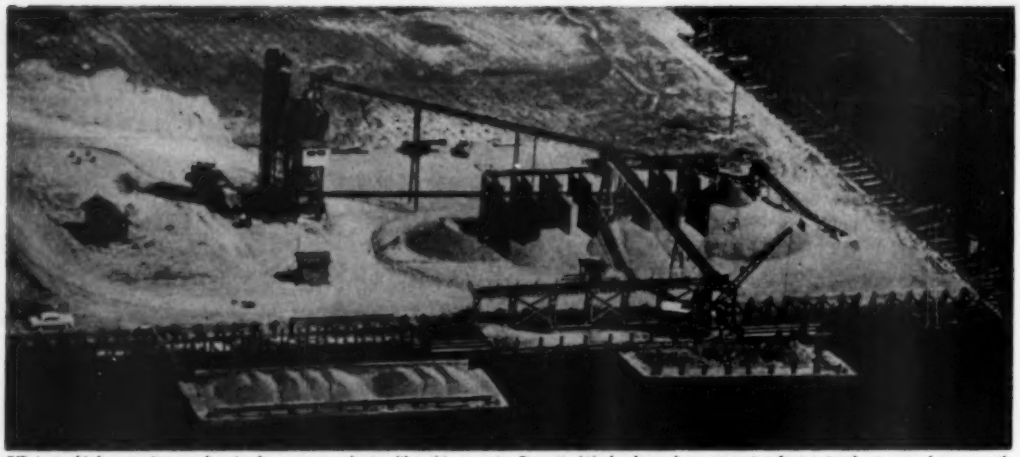
**Outlook** Based on the tabulated opinions of block producers themselves, the concrete masonry industry should fare well in the year ahead. Almost half of our informants predicted that 1953 would duplicate 1952 in volume of business, and 44 percent of the returned questionnaires indicated that modest increases might be experienced. Only 7 percent of the total sample predicted modest downward adjustments in business volume. These sentiments were surprisingly uniform throughout the various sections of the country, although producers in the West and the South appeared to view the outlook with somewhat more complacency than those in the Midwest and the East.

In seeking to obtain some clue to what lies ahead for the industry we asked our informants to indicate whether or not they had plans for increasing plant capacity in 1953. About 28 percent of the replies to

Greater awareness of the importance of merchandising was evidenced last year by more displays aimed at the home building market. The attractive display pictured here was presented by the Mo-Kan Concrete Products Association at a home show in Kansas City.



In a number of branches of the products field there was growing awareness in 1952 of the necessity of providing service along with materials. The photo above shows concrete tile being delivered at roof level.



**Efficient, high-capacity ready-mixed concrete plants, like this one in Everett, Wash., have been a major factor in the tremendous growth of the ready-mix industry. Note the facilities for handling and storing many type and sizes of aggregates.**

this question were affirmative, but it is a little upsetting to note that the "Yes" responses ran *much* heavier in the Midwest and the East, where there was relatively less optimism concerning the outlook for increased business.

One of the most important factors which must be taken into account in appraising the industry's prospects is the outlook for new construction in 1953. Based on the major assumption that business in general will remain good, the U. S. Department of Commerce predicts that new construction activity in the year ahead may reach a new peak, possibly rising about a billion dollars above the $32,300,000,000 level apparently reached in 1952. Of this amount it is anticipated that new private construction, supported by a continued high level of housing and commercial building activity, as well as public utility plant expansion, will account for perhaps $22,200,000,000.

Housing starts are expected to duplicate the showing in 1952, when the 1,000,000-unit level was again exceeded. Improved availability of materials and the removal of credit controls will help continue the recovery in commercial building activity which became evident in the closing months of 1952, and it is believed that this category may show as much as a 25 percent increase in 1953.

Of major interest to the concrete masonry industry is the near certainty that public school construction activity will continue expanding well into the new year. Reflecting the persistent increase in classroom requirements, it is expected that expenditures for new schools and additions will total about $1,800,000,000—a 10 percent increase over the level estimated for 1952, and probably the largest amount of classroom space ever to be put in place in a single year.

**Markets** While the survey of production in 1952 was not designed to gather data on how block output was distributed among major markets, there was other evidence to indicate that the industry, or at least a portion of it, was making progress in developing a broader base of outlets for its product. There was increased activity in the floor and roof market, and several concerns jumped into the challenging new fields of prestressing and post-tensioning.

Residential housing, unquestionably one of the largest potential markets for block, may have taken a slightly larger portion of output in 1952 than it has in other years, but the industry's showing was still far from satisfactory. Lethargy, brought on by the comparative ease with which other markets can be sold, appears to be a major factor in preventing the kind of all-out merchandising effort which the housing market obviously requires. More producers were at least aware of this problem in 1952 than in previous years, and there was some evidence of a growing feeling that concerted action must be initiated soon.

## *Ready-Mixed Concrete*

ACCORDING to the findings of a survey conducted by this publication in the closing weeks of 1952, the production of ready-mixed concrete for the year increased approximately 5 percent, and undoubtedly hit a new record total of well over 45,000,000 cu. yd. This conclusion was based on information furnished by producers whose output for 1952 totalled approximately 8,200,000 cu. yd. of material, or roughly 20 percent of the industry's presumed total production.

The estimate of total production is founded on somewhat better evidence than has been the case in past years as the result of a very comprehensive survey of the industry's 1951 output which the National Ready Mixed Concrete Association conducted last year among both member and nonmember companies. Although the output of some 37,750,000 cu. yd. reported by the almost 700 concerns which answered the association's questionnaire agreed closely with previous estimates of the industry's total volume of production, in arriving at a revised total figure for 1951 the reported yardage has been upgraded by 15 percent to take account of the producers who neglected to supply information. By this somewhat arbitrary calculation, 1951 production was established at 43,400,000 cu. yd., and the 5 percent increase for 1952 revealed by our own survey brings the estimated total for that year to approximately 45,500,000 cu. yd.

The CONCRETE MANUFACTURER's survey of 1952 production showed fairly uniform gains in all parts of the country except in the West, where the rise over the 1951 level was only about 1½ percent. Midwestern producers, whose reports comprised over 40 percent of the total yardage covered in the survey, showed gains averaging about 6 percent, whereas in the South and the

East, where approximately equal samples were obtained, there were increases of 9 and 5 percent, respectively.

**Cement Supply** It seems likely that in the year just closed the ready-mixed-concrete industry consumed 57,000,000 bbl. of portland cement, or about 23 percent of the estimated 249,000,000 bbl. shipped by the cement industry in 1952. In setting a new record for cement consumption, producers of ready-mixed concrete seem to have been quite successful in obtaining adequate supplies of the material to meet their needs throughout the year. Well over 60 percent of all our informants reported no difficulty at all with cement supply, and lost production attributed to this cause amounted to only 2¾ percent of the reporting group's total output for the year.

Last year the cement shortage actually appeared to be a serious factor only in the Midwest. Fifty-seven percent of our informants in that section of the country reported lost production during the year due to lack of cement, and their estimates indicated that losses in the area may have totalled 5 percent or more of production. This finding was confirmed on an area basis by a similar survey of the concrete masonry industry, a report of which will be found elsewhere in this issue. Losses among ready-mix producers in the East ran about 3½ percent and in the South about 1 percent. There were no losses indicated on the questionnaires filled out by Western producers.

**Truck Fleets** As in past years, this publication's survey sought to develop information on the number and capacity of trucks operated in conjunction with typical ready-mixed-concrete plants, as well as to trace any trend toward larger fleets and larger haulage units. Data compiled from the 1952 survey show an increase in the average number of trucks per plant from 14.1 on January 1 to 15.2 on November 1. In the same period the average total capacity of trucks per plant increased from 56 cu. yd. to 60 cu. yd., while the average capacity per truck showed only an infinitesimal rise—from 3.97 to 4.01 cu. yd. The latter figure checks closely with similar data compiled from a survey made a year ago, in which a sample of approximately the same size showed average truck capacity of 3.95 cu. yd. It may also indicate an easing off of the marked trend toward larger haulage units which became apparent immediately after the war.

The number of trucks per plant showed modest increases in all sections of the country except in the South, where, for the 10-month period covered by the survey, the figure remained unchanged at 12. The average increased from 15 to 16½ units per plant in the East, from 13 to 14 in the Midwest, and from 19 to 20 in the West. Similar data obtained in the far more comprehensive survey conducted by the National Ready Mixed Concrete Association last year showed an average of 12.5 units per company for the entire nation.

Total truck capacity per plant increased by amounts ranging from 1 to 6 cu. yd. in the various geographic divisions of the country. The increase in the East was from 69 to 71 cu. yd., in the Midwest from 45 to 49 cu. yd., and in the West from 87 to 93 cu. yd. Capacity per truck showed no significant change in any section of the country; this figure on November 1 stood at 4.6 cu. yd. in the East, 3.5 cu. yd. in the Midwest, 3.7 cu. yd. in the South and 4.7 cu. yd. in the West.

**Prices** The survey data indicate that the average price of ready-mixed concrete increased from $11.91 per cu. yd. on January 1 to $12.09 per cu. yd. on November 1, a rise of about 1½ percent. Although the questionnaires did not specifically ask for an explanation of price changes, there is good reason to believe that increases due to out-of-area material purchase, authorized by amendments to the General Ceiling Price Regulation, account for most of the rise.

The average price among the reporting group in the East rose from $11.74 to $12.00 per cu. yd. during the 10-month period covered. Comparable figures for the Midwest were $11.85 and $12.09 per cu. yd., for the South $12.98 and $12.99 per cu. yd., and for the West $11.12 and $11.26 per cu. yd.

**Outlook** We asked our informants to indicate whether they expected their volume of business in 1953 would increase, or decrease, or stay about the same as it was in 1952. About 38 percent of all the replies predicted some increase might be experienced in the year ahead, while a considerably smaller fraction (around 20 percent) thought the trend would be downward. The remaining 42 percent either expressed the view that 1953 might be a repeat of 1952, or indicated in some manner that our guess was as good as theirs.

The restrained optimism indicated by our sample of the ready-mix industry is borne out in at least a general way by preliminary estimates of new construction in 1953. It is expected that new construction in the year ahead will rise about $1,000,000,000 over the record $32,300,000,000 which is believed to have been attained in 1952. A peak of $22,200,000,000 in expenditures for new private construction is anticipated, and public construction is also expected to show some expansion. Outlays for military and naval facilities are also expected to show an increase to approximately $1,600,000,000 as the current program is completed and as new work, much of which is already under contract, gets under way.

## *Concrete Pipe*

BASED on the fragmentary evidence available at the close of the year the output of concrete pipe in 1952 probably increased at least 10 percent to set a new record of about 11,000,000 tons. Although modest gains appear to have been made in both production and shipments of sewer and culvert pipe, as well as drain tile, the largest gain percentage-wise was undoubtedly in the field of pressure pipe. No figures are available, but it is believed that one job alone, the Savannah River Atomic Energy project, may have accounted for 50 percent of all the pressure pipe produced in 1952.

The year just closed showed marked improvement in respect to the availability of both cement and reinforcing steel. In the case of steel the industry's requirements were anticipated in N.P.A. quotas because of the essential character of most projects which involve the use of concrete pipe. It appears fairly certain that no important tonnage of pipe production was lost during the year due to lack of reinforcing.

The situation in respect to portland cement showed a similar improvement in 1952, although there were sporadic shortages of brief duration in various sections of the country. In most such cases it appears that deliveries were received in time to prevent any serious disruption of production schedules. It is estimated that in 1952 the concrete pipe industry consumed approximately 14,000,000 bbl. of cement, or a little over 5½ percent of the total quantity of cement shipped during the year. The industry's 1952 steel consumption is estimated at about 375,000 tons.

The pipe industry goes into 1953

with an excellent backlog of business, and with considerable assurance that demand for its product will hold at high levels throughout most of the year. Present indications are that total output for the year ahead will approximately equal the 11,000,000 tons which the industry appears to have produced in 1952.

The official organization of the industry, the American Concrete Pipe Association, had an outstandingly busy and successful year throughout 1952. Its membership was increased by almost a score of firms to bring its industry representation to the highest level in history. Association activities underwent an important expansion with the opening of an office in Washington, D. C. One major objective of this move is to assist government bureaus upon request in recognizing and evaluating the exacting engineering criteria necessary for the correct design of pipe systems, and in the preparation of general codes and specifications pertaining to such systems. Headed by John Ruhling, formerly of the Portland Cement Association, the new Washington office also provides a prompt reporting service on developments which are likely to affect the pipe industry.

Publication of an Association handbook of hydraulics was delayed unexpectedly last year because important new avenues of investigation were opened up as a result of studies at St. Anthony Falls laboratory. Although none of the new data are ready for publication, it is believed that new findings concerning the relation of entrance losses to the amount of water through various types of pipe may have far-reaching effects. One immediate result is that an entirely new set of curves is being developed on the action of water through culverts under critical flow conditions. With this work nearing completion, publication of the hydraulic handbook is now tentatively scheduled for this summer.

An important 1952 development in the concrete pipe industry during 1952 was the appointment of John A. Ruhling to the new post of Washington representative of the American Concrete Pipe Association.

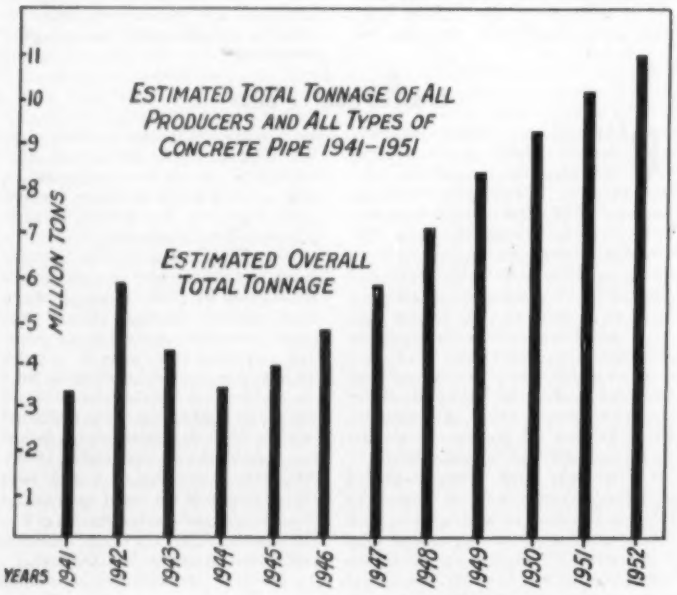
During 1952 the Association, in collaboration with member companies, continued its investigation of special designs for large-diameter pipe. Breaking tests on sections of 84-in. diameter pipe incorporating new reinforcement cage designs indicate that strengths may be more than doubled in comparison with units manufactured in accordance with presently accepted theories. In collaboration with the Bureau of Public Roads the Association also carried out some research last year on the strength of welds in wire reinforcement.

The corrosion resistance of concrete pipe is being subjected to scrutiny as a result of a new research project just getting under way at Tulane University. Sponsored by the American Concrete Pipe Association, this important new study will seek to determine materials and methods of manufacture which will assure maximum resistance of concrete pipe to acids and other unfavorable ground conditions.

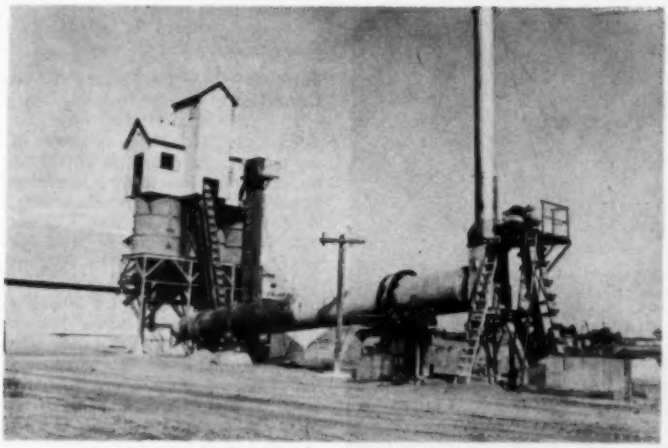
Some work was also done during the past year on means of adapting vibration so that it can readily be employed in combination with either the tamp or the packerhead process of pipe manufacture. This investigation appears to promise some advantages in respect to quality.

A high spot of the year was the Association's annual short course, held in Chicago late in November. Well over 125 individuals registered for the three-day session. Although only in its second year, the school has already established for itself a fine reputation as a prime means for the free interchange of technical know-how.

As concrete pipe manufacturers converge on Dallas, Texas, next month for their Association's 45th annual convention and meeting, they may with good cause indulge in a little self-congratulation on both the present standing and the future prospects of their industry. Since 1944, when the estimated output of the entire industry amounted to less than 3,500,000 tons, production has climbed without interruption at an average rate of almost 1,000,000 tons a year—a tremendous achievement of sustained growth. It must be expected that the production curve will show signs of leveling off, but this is by no means to say that the cycle has run its course. The present commanding position of the pipe industry is far more a result of firmly established product superiority than of economic factors, and we are persuaded that the use of concrete pipe must continue to increase so long as this element remains in the picture.



# Bagged Dry-Mix Line Added By Phoenix Aggregates Firm



The 5- by 60-ft. rotary drier and other equipment at the Arizona Sand and Rock Company's new plant at Phoenix, where bagged dry-mix concrete is produced.

another ON THE SPOT report

BUILDING-SUPPLY dealers and nurseries throughout Arizona are the chief consumer outlets for "Pre-Mix," a line of dry-mixed concrete materials packed in 75-lb. bags and prepared by the Arizona Sand & Rock Company of Phoenix.

A new plant to dry, proportion, and package these commodities was recently erected on the company's property located a few blocks south of the main business section of the Arizona capital. The firm bags a regular concrete mixture with the largest aggregate ½ in. in size, mortar mix consisting of cement, sand and admixtures; a concrete topping, a mixture of cement and fine (minus 16-mesh) sand; and a clean, dry play sand for the kiddies' sand-boxes.

Aggregates, of course, come from the company's commercial plant, alongside which the Pre-Mix installation was built. These are trucked to a 10-cu. yd. hopper below ground level and, *via* a belt feeder and elevator, fed to a 5- by 60-ft. rotary drier equipped with channel-iron lifters. The drier is fired with natural gas and has a 35-ft. steel exhaust stack.

The dried sand and gravel is then elevated to a 3- by 5-ft. single-deck vibrating screen above the 40-ton bins, two of which are for sand and gravel storage, the other for bulk cement.

From the bins, three Syntron electrically-vibrated feeders proportion the ingredients onto a flat, extra-flexible weighing belt. Each material is carefully weighed by Hardy automatic scales with electrical cut-offs and over-and-under indicators. Controls are completely interlocked, and proportioning will stop immediately in the event any material should, for any reason, fail to flow. Movement of the cement is accelerated by air jets and vibrators on the spouts.

Batches coming off the belt discharge to a short double-shaft pugmill which blends the ingredients before going to the feed hopper of the 2-spout valve-bag packer.

The packer operator controls the proportioning operation from his station at the packing machine, output being about 175 filled bags per hour. The bags are stored in a large warehouse building which also houses the proportioning and packing machinery.

The equipment was designed and erected under the supervision of Superintendent Al Carter.

Cement, sand, and gravel are fed from the bins, then proportioned and weighed on an extra-flexible rubber belt prior to blending and packing in 75-lb. bags.

### Maine Concrete Block Firm Makes Excellent Progress

In the short span of 4½ years, the Maine Cement Products Company has increased its output of cinder blocks by 2,000 percent and now supplies 80 percent of Maine's market for cinder block, as compared to 10 percent in 1948. The company, the first one in Maine to produce cinder block, began operations in 1948 at a small plant in Milford, utilizing a hand mixer, a block machine which made two blocks at a time, insulated sheds for raw steam curing, and portable stoves.

Although facilities at Milford were expanded, the operation there ceased in favor of a recently constructed modern block plant at nearby Veazie, which began operating in May, 1952. Meanwhile the company has grown into a corporation, with Jesse Storey, organizer of the original company, as its president.

The firm is also manufacturing cinder blocks at the Bancroft & Martin Rolling Mills concrete pipe plant at North Leeds. In addition, it has taken over Aroostook Cement Products Company at Presque Isle and has formed a subsidiary, the Bangor Wilbert Vault Company, for manufacturing these nationally franchised burial vaults.

Block production at the Veazie and North Leads plants is expected to reach 2,000,000 units in 1952.

# Block Makers Discuss Marketing and Operations at Miami Beach Meeting

Some of the members of the program committee of the Southeastern regional meeting of N.C.M.A.—M. M. Orovitz, Destin Block Co., Miami Beach; Neilson Jones, Florida Portland Cement Co., Miami; Paul Anderson, Maule Industries, Miami; Hardy Magrath, Lehigh Portland Cement Co., Jacksonville, Fla.; M. E. Rinker, Rinker Materials Corp., West Palm Beach, Fla.; W. R. Ireland, Atlanta Aggregate Co., Atlanta, Ga.; Leon K. Camp, Camp Concrete Products Co., Columbus, Ga.; and G. W. Katterjohn, Katterjohn Concrete Products, Paducah, Ky.

southern ON THE SPOT report

By WILLIAM M. AVERY

ALMOST 200 producers of concrete masonry units from all over the United States converged on Miami Beach late in November to take part in the ninth annual Southeastern Regional Meeting of the National Concrete Masonry Association. The three-day program, held at the Casablanca Hotel, offered an exceptionally interesting, timely, and well-balanced fare of business, marketing and technical discussions presented by leaders of the industry and prominent guest speakers.

One important outgrowth of the meeting was the formal organizing of the southeastern producers into a regional association within the framework of the national organization. Since its first meeting eight years ago the group had been rather loosely held together by a nucleus of interested producers. Although this arrangement has worked quite well, it was felt that some form of organizational setup is now desirable in order to cope effectively with the increasingly complex problems which face the industry. The regional association does not, however, plan to collect dues from its members. Officers elected to serve until the 1953 meeting are George W. Katterjohn, president; M. E. Rinker, F. L. Williamson, and Lewis Lloyd, respectively first, second, and third vice-presidents; and William R. Ireland, secretary-treasurer.

**Business Conditions** At the opening session of the meeting, Mr. Katterjohn, who presided, called on various members of the audience to report informally on business conditions in their localities. Reporting for the Birmingham area, A. E. Lloyd of the Alabama Cement Tile Co. used a chart to show the relationship in recent years between sales and factory-rated capacity based on one-shift operations for 50 weeks out of the year. Both curves climbed steeply from 1945 to 1950, with sales volume running well ahead of one-shift capacity. At present, Mr. Lloyd said, area capacity is a little over 9,000,000 units. Although sales have shown a modest drop since 1950, the speaker expressed confidence that the curve would resume its upward trend in 1953.

Leon K. Camp, Camp Concrete Products Co., Columbus, reported briefly on the industry's status in the state of Georgia. Despite the strong competitive position of clay products, Mr. Camp said, concrete block has made considerable progress. Where formerly the entire thickness of 12-in. school walls consisted of clay, in most present-day projects such walls consist of 8-in. masonry units faced with 4 in. of clay brick. Mr. Camp stated that each of the 159 counties in the state of Georgia has definite plans for building one or more schools within the next year,

Scene of the ninth annual meeting of the Southeastern Division of the National Concrete Masonry Association was the Casablanca Hotel on Miami Beach. One of the features of the entertainment was a water show in the pool shown here.

# Southeastern Division of N.C.M.A. elects officers for first time; Katterjohn accepts presidency.

and he predicted that these projects would enable local block producers to show further gains in 1953.

Sam M. Bailey, Jackson Stone Co., Jackson, Miss., said that there has been relatively little construction activity in his state. He believes, however, that prospects for the future are quite good.

H. J. Stockard Jr., executive secretary of the North Carolina Concrete Masonry Association, reported on business conditions in that state. North Carolina, according to Mr. Stockard, is advertised as "the brick capital of the world", and there still remain some tag ends of prejudice against concrete masonry. For example, he said, insurance rate structures still favor brick, although there are indications that this inequity may soon be dropped. In describing some of the activities of his association, Mr. Stockard made particular mention of a design competition which the group sponsored for architectural students to acquaint them with concrete masonry. It is believed that such long-range merchandising policies will some day benefit all the producers in the area.

Reporting for the state of Georgia, R. J. Kennedy, Ken Block Co., Savannah, paid tribute to the outstanding work of N.C.M.A. and of the Portland Cement Association in making it possible for the block industry to continue selling its product to the Corps of Engineers. Through the efforts of these organizations, Mr. Kennedy said, concrete masonry units are now covered in the specifications of every county in the state.

**Concrete Course** W. R. Ireland, Atlanta Aggregate Co., Inc., Atlanta, Ga., announced that the third short course in quality concrete will be presented at Georgia Tech from February 2 to 4, and he extended a cordial invitation for interested members of the southeastern block group to attend. The 1953 course will again include sessions on the manufacture of concrete masonry units, and it is also planned to devote some time to the design, manufacture and use of prestressed concrete.

**Advertising** A number of practical and helpful suggestions concerning the use of advertising by block producers were presented by Robert E. Clarke, head of an agency which handles the Maule Industries account in Miami. This speaker, in introducing his subject, expressed the view that block makers are generally prone to be complacent in respect to advertising. Too many, Mr. Clarke said, take the easy way of sending out occasional direct-mail pieces to existing customers, or of using small card insert ads in publications of the building trades.

Because the building field is highly competitive, the speaker continued, the block producer can ill afford to omit from his selling effort the individual who does his own work. In regard to media, Mr. Clarke expressed the view that newspaper advertising should be regarded as basic. Other media, such as radio and television, should enter the picture only if there is sufficient money left over after a sound newspaper program has been worked out.

Mr. Clarke believes that contractors and builders are generally too price-conscious to delve into the subject of advertising. This circumstance, coupled with the fact that architects are forbidden to advertise by their code of ethics, affords the block maker an opportunity to do a three-fold job by simultaneously promoting his own interests and calling attention to the importance of employing established competent builders and architects for all construction work. To illustrate this point, the speaker read from several Maule advertisements in which home builders are urged to seek such assistance before they build. Sales trends, Mr. Clarke added, have definitely established the worth of such an advertising program.

Newspaper advertisements, according to Mr. Clarke, should also be used to promote the sale of small precast concrete items, for such ads definitely bring in new customers and help to build up total sales volume. Regardless of the particular slant to be used, copy must be institutional in nature, since the block business doesn't lend itself to the use of such business stimuli as monthly sales, inventory clearances, and similar devices.

Mr. Clarke said that experience indicates that Monday evening papers do the best advertising job—probably because this is stay-at-home evening for most families. If morning papers are to be used, there is a preference

Our roving camera caught this earnest discussion involving Bill Ireland, Atlanta Aggregate Co., Atlanta, Ga.; Ralph B. Rogers, Texas Industries, Inc., Dallas; and A. G. Streblow, Basalt Rock Co., Napa, Calif.

Left: This trio, all from Atlanta, consists of H. J. McDargh, Southeastern regional manager of the Portland Cement Association; Roy Darden, Roy Darden Industries, Inc.; and D. T. Chaney, regional structural engineer, P.C.A. Mr. Chaney's discussion of the problem of shrinkage cracking was one of the highlights of the Miami Beach meeting.

Right: Caught in the act of reading your favorite journal were Sam M. Bailey, Jackson Stone Co., Jackson, Miss.; Jay E. Ehle, Cleveland Builders Supply, Cleveland, Ohio; and Sam Paturzo, V. Paturzo Bro. and Son, Baltimore, Md. Mr. Ehle's authoritative discussion of preventive maintenance was a major contribution to the meeting. Mr. Paturzo was introduced to the gathering as the next president of N.C.M.A.

There was a bumper turnout for the motor launch tour of the Indian River. Identifiable in the foreground here are Mrs. Roy Darden, just behind her J. T. Hart, George Katterjohn in the act of polishing up a chair for someone, and Carroll Strohm. We have the impression that the man with the dark glasses was selling newspapers, using the hilarious pitch that his was the only deal on the Beach you could consummate for a nickel.

for Tuesday, Wednesday, or Thursday. Although Sunday papers can do an effective job, Mr. Clarke believes that because of overcrowding more space is required to do a given job.

In the speaker's opinion production, layout, and the message of an ad determine its effectiveness far more than its location. A good ad will pull in almost any location; a poor one will fail to pull even with the best possible location.

Unless the available budget is quite large, Mr. Clarke believes that radio advertising should probably be omitted from the block industry merchandising picture. Out of any total appropriation, he added, around 75 percent should be allocated to newspapers. In answer to a question from the audience he further stated that 1½ to 3 percent of gross sales can profitably be used for advertising purposes.

**Public Relations** In discussing the broad subject of sales and public relations, Frank Dunbaugh of the University of Miami urged his audience not to sell its product, but rather to create situations in which customers will want to buy. Don't, he said, go out peddling a cold, unromantic concrete block; instead, tell the customer about the beautiful, comfortable home he can have, or the wonderful vacation he can enjoy without the worry of fire or termites damaging his concrete masonry home.

Miami Beach was sold to the public, Mr. Dunbaugh said, mainly by sending out thousands of pictures of satisfied customers; *i. e.*, bathing beauties. Today the same idea is universally employed to sell every imaginable sort of commodity.

Defining public relations as a policy of "doing good and then letting people know about it", Mr. Dunbaugh went on to say that the most important part of selling is to see that the customer gets what he wants when he wants it. He believes that the primary purpose of all sales efforts should be to make *customers* rather than just sales. The head of every business, Mr. Dunbaugh said, should see that the performance of all his telephone operators is checked periodically to be sure that harm is not done at this level of contact.

E. W. Dienhart, executive secretary of N.C.M.A., makes a point from the floor of the convention, while Herb Jahncke, Jahncke Service, Inc., New Orleans, and A. E. Lloyd, Alabama Cement Tile Co., Birmingham, listen attentively. All three of these gentlemen participated in the formal program of the meeting.

**Onward Florida** We haven't yet figured out how his remarks applied to the marketing of concrete units, but the final speaker at the session on marketing was R. D. Roberts of the Florida Power & Light Co., who disgorged a mass of statistical evidence designed to prove that Florida in general, and Miami in particular, is the garden spot of creation. It was a good job as such jobs go.

**Curing and Moisture Control** Hugo Quillian, Quillian Concrete Co., Daytona Beach, Fla., described the efforts of his firm to build plant facilities which will dependably produce masonry units of the highest quality. Although it was recognized that a high-pressure system would be the best solution to the problem of curing and moisture control, the company decided, on grounds of economic practicability, to install a high-temperature atmospheric pressure system. Outstanding plants were visited throughout the country in order to determine the areas of agreement in the design of such systems.

In the new Quillian plant the ten curing cells are housed in a single building 26 ft. in width by 140 ft. in length. Thus the individual cells are 13 ft. wide and 26 ft. deep, and they accommodate twelve 72-block racks each, or 864 8-in. equivalent masonry units. The relatively small cells were built with a view mainly to establish a filling time of 1¼ hr. for each individual kiln; they have the additional advantage, however, of materially simplifying lighting, drainage, and ventilation problems.

Walls of the kilns were built of 30-lb. pumice masonry units with an unbounded tie beam around the top. Cores of the units were filled with vermiculite to provide additional insulation. The rear walls contain 2- by 2-ft. doors for exhausting steam. In order to obtain badly needed warehouse space the structural flat-slab concrete roof was designed for a working load of 200 lb. per sq. ft.

Steam is produced with a 40-hp. Littleford Kwik-Steam Vapor-Clarkson continuous-type generator. One-in. pipe lines enter each cell from the 2-in. header which runs the length of the curing building. Temperature control is by means of bellows-type valves tied to mercury-vapor bulbs located in the various cells.

The curing cycle starts with a 1- to 2-hr. retention period after the kiln doors are closed, with the temperature rising during this interval from

about 80 deg. to around 120 deg. F. due to heat of hydration. Steam enters the kilns until the temperature hits 170 deg. F., when the valve is closed and the units are allowed to soak for a still-undetermined period that seems to range from 3 to 12 hr. in duration.

Although some details of the installation, such as boiler capacity and provisions for ventilation, are not entirely satisfactory, the company is well pleased with the product it can now produce. About 70 percent of 28-day strength is reached three days after manufacture, and after six days the proportion is about 90 percent. This, of course, permits earlier handling of the product, results in a substantial reduction in culls, and makes it possible to operate with a smaller inventory. Most importantly, the new curing facilities make it possible for the Daytona concern to manufacture a uniform product regardless of weather conditions.

**Preventive Maintenance** Jay Ehle, Cleveland Builders Supply Co., Cleveland, Ohio, described some of the very interesting results of his company's intensive program of preventive maintenance. Most provocative, perhaps, was the discovery that serious breakdowns are more likely to occur during the period immediately after lunch than at any other time of the day. This fact was established by installing recording timer mechanisms on each of the four Besser Super Vibrapacs in the plant. Records of "down time" gathered in this manner showed that the preponderant majority of serious breakdowns occurred during the period from 1:00 to 1:30 p.m., shortly after operations were resumed following lunch.

It seemed, Mr. Ehle said, that the half-hour lunch period might therefore prove to be the best time of day in which to concentrate preventive maintenance effort. Accordingly, a four-man crew was assigned to make a careful inspection of each machine during this period, looking for loose bolts, worn chains, bad bearings and any other defects that might cause a breakdown. As a result of this program the company has managed to reduce "down time on its block machines to the almost unheard-of low of about one hour per week.

Another measure of preventive maintenance described by Mr. Ehle, has to do with electrical work. Every two weeks a crew of electricians makes a thorough check of the 40-odd motors in the plant, looking for signs of trouble in the making. These regular inspections are carried out on Sundays in order to avoid interference with operating schedules. Mr. Ehle believes they have been an important factor in obtaining maximum output from the company's productive equipment. It also helps, he added, to maintain as large a stock of replacement parts and repair materials as possible, even though sources of supply may be relatively close by.

**Employee Relations** Herbert G. Jahncke, Jahncke Service, Inc., New Orleans, La., told about some of the policies which his company has found most effective in helping to establish and maintain harmonious employer-employee relations. In hiring employees every effort is made to select individuals who will stay and grow with the company, and this policy is implemented by the firm intention of making promotions from within the ranks of the organization whenever it is possible to do so.

Employees share in the profits of the company in accordance with length of service and individual effort. This is done in the belief that individuals must be recognized and rewarded as individuals—not bought and sold like so many tools. In this connection Mr. Jahncke pointed out that at times a word of honest praise may actually mean far more than any monetary reward.

In unionized plants particularly, the speaker said, it is of the utmost importance to scrutinize closely the past records of job applicants, since it often proves virtually impossible to get rid of individuals who are lazy, incompetent or inclined to be trouble makers. He also stated that it is a good idea for employers to spell out policies which affect employees, and in conclusion he urged that employers have no hesitation in making full use of their rights as defined in the Taft-Hartley Act.

**Construction Outlook** In discussing the construction outlook for the concrete masonry industry, William P. Markert, N.C.M.A. director of promotion, stated that every kind of facility for civilized living will be profoundly affected by the present upsurge of population. He pointed out that last year babies were born at the rate of around 7,500 per day, bringing about a net increase in population of about 2,650,000. One result of the high birth rate is that the population of elementary schools will continue to soar at least through 1958, with high schools and colleges certain to feel the effects for a considerably longer period of time. The current baby boom, Mr. Markert added, will inevitably help to maintain for many years the demand for new housing. Also helping to bolster this market will be need for the replacement of some 46,000,000 existing homes during the next 80 years.

The speaker stated that members of N.C.M.A. are spending approximately $600,000 yearly for newspaper advertising. Although this expenditure has the potential possibility of doing a good selling job, much of the money Mr. Markert believes, is virtually wasted on such useless copy as congratulatory ads. Even though the pressure to run such ads may be very great, they do not, in the speaker's opinion, further the user's selling effort in the slightest degree.

It is dangerous, Mr. Markert said, for the block industry to coast any longer on its past performance. Competition from ready-mixed concrete, and the growing popularity of basementless construction, have combined to put a serious dent in the industry's once considerable subgrade market, and the clay products industry shows every evidence of intending to fight to regain some of the markets in which block has made such substantial progress.

There is a big job of re-education to be done, Mr. Markert went on, to overcome the residue of prejudice and misconception which still constitute a serious limitation on the market for concrete masonry units in the housing field. To do this job, he said in conclusion, every available media of advertising and promotion must be utilized to the utmost.

**Construction Clinic** Pointing out that building codes are generally written to favor locally available materials, B. W. Sills, Miami Beach building inspector, stated that it was logical that Miami Beach and other south Florida communities, with abundant supplies of natural aggregates, should favor concrete and concrete products in their codes. In Miami Beach, Mr. Sills said, we have a combined performance and specification code which leans somewhat toward the performance side.

In discussing the community's experience with concrete masonry, this speaker stated that concrete masonry buildings suffer no structural damage even during the most severe wind storms. Elaborating on this point, he went on to say that the product makes very rigid buildings which clearly have a great deal of inherent resistance to the stresses created by storms. As a result of occasional failures in the past, particularly with parapet walls, the code now requires both horizontal and vertical ties.

In answer to a question from the audience, Mr. Sills said that exposed block are permitted only in single-family dwellings, stucco being required on all other structures as a matter of fireproofing. For insurance rate-setting purposes, Mr. Sills said in conclusion, local masonry units coated with stucco constitute a 4-hr. wall.

**Government Specifications** D. S. Chaney, Atlanta office, Portland Cement Association, discussed some of the problems of government specifications as they affect manufacturers of concrete masonry units. In view of the block industry's tremendous growth, and the rather sudden trend toward the wide use of its product for exposed surfaces, Mr. Chaney thinks it is hardly surprising that there have been some complaints and headaches. In his experience complaints about wall cracks exceed the sum of all other complaints, and he believes it is of the utmost urgency that the industry solve this problem quickly.

It was to meet just this problem, the speaker went on, that in 1950 a more realistic moisture limitation was adopted in specifications of the Corps of Engineers. This specification, with its limitation of moisture content to 30 percent of maximum absorption capacity, has been a source of major concern to many block manufacturers; and Mr. Chaney devoted the remainder of his remarks to explaining the specification and the factors which led to its adoption.

Because cracking had been prevalent in a considerable number of Corps of Engineers block structures, the industry was faced with the loss of this important market unless the problem could be solved. It was definitely known, Mr. Chaney said, that shrinkage of masonry units was an important factor in the cracking prob'em. There was also abundant evidence to indicate that masonry units which complied with the old 40 percent moisture limitation were not usually in balance with the humidity of the surrounding atmosphere.

Thus the 30 percent limitation was adopted on the premise that it would surely improve, even though it might not solve, the problem of shrinkage cracking. According to Mr. Chaney, experience has pretty well established the soundness of this premise. Although the dryer units are not entirely stable in respect to volume change due to moisture, it has been definitely shown that walls built under the new specifications develop fewer cracks and smaller ones than was true under the 40 percent moisture limitation. Inspection of Corps of Engineers block structures built since 1950, Mr. Chaney said, leaves not the slightest room for doubt that a long step has been taken toward the eventual elimination of shrinkage cracking.

There is no assurance, however, the speaker went on, that the 30 percent limitation is sufficiently rigid. He pointed out that a 100-ft. masonry wall built of units having 100 percent absorption would show very little shrinkage (less than 1/10 of an inch) as a result of drying down to 40 percent of maximum absorption. Such a wall, in reaching equilibrium with an atmosphere of 75 percent relative humidity (equivalent to a 20 percent moisture limitation) would show a total shrinkage of 3/8 in. An additional 1/4 in. of shrinkage would occur in reaching equilibrium with an atmosphere of 50 percent relative humidity, which would be about equivalent to a 15 percent moisture limitation. These figures, in Mr. Chaney's opinion, clearly indicate the possibility that an even more stringent specification may eventually be written.

It is obvious, the speaker continued, that block manufacturers cannot deliver under the 30 percent limitation with the same effort, or at the same cost, that they did under the 40 percent specification requirement. Factors which lead to higher costs include the necessity of some means of accelerated drying, the need for covered storage areas at the plant and means of protection on the job, and the almost inevitable contingency of additional handling.

In discussing steps which the producer might take to meet the 30 percent limitation, the speaker mentioned the following: develop larger yard storage areas and correspondingly greater inventories, which he referred to as a "helpful" possibility, but not necessarily the "cheapest or the most effective method"; provide and use tarpaulin coverings, especially if it isn't necessary to meet the specification very often; build combination storage and drying facilities, with provision for forced drying of the units just before delivery. Drying cost for a standard unit, according to Mr. Chaney, may be expected to vary from 1 to 1½ cents, with the higher limit most likely in connection with winter operations.

Although Mr. Chaney agreed that the responsibility for proper storage at the building site rests with the contractor, he pointed out that the block manufacturer has a considerably greater interest in seeing to it that his product is used under favorable conditions. Job protection, he went on, is not a difficult problem, for there are many economical solutions.

In summing up his remarks, Mr. Chaney pointed out that the block industry has much to gain by observing a specification that bears so directly on the performance of its product. Low cost, he stated, must not be the sole criterion for the use of concrete block, and it is up to the industry to command a higher price for its product by making that product conform to higher standards. There will, Mr. Chaney said in conclusion, of course continue to be many markets for block (*viz.* backup and foundation work) in which moisture content is not a critical factor.

**Dienhart's Report** Elmer W. Dienhart, executive secretary of N. C. M. A., recalled that it was just ten years ago that a group of far-sighted block producers decided it was time to establish a full-fledged national association for their industry. In the ensuing decade, he said, membership has grown from 118 to over 500, and there has been an equally noteworthy increase in the size of the association's staff, as well as in the range of services which it provides.

Mr. Dienhart discussed the desirability of closer co-operation between the national association and various state and regional groups. He referred to the findings committee which has studied the possibility of establishing regional association offices for this purpose, and he said that such groups can be organized whenever the time is right, provided only that they are self-supporting and that their members are members of N. C. M. A.

In closing Mr. Dienhart urged everyone in the group to attend the association's convention and exposition at the Cleveland Auditorium, Cleveland, Ohio, January 25 to 29. Mr. Dienhart said that the display of concrete machinery will be both the largest and finest in history.

**Streblow's Address** A. G. Streblow of Napa, Calif., president of N. C. M. A., said that there is no ceiling on the future of the block industry so long as individual members will continue to shoulder their responsibilities. Pointing out that much of the industry's growth has been in markets formerly dominated by clay brick and tile, Mr. Streblow reminded his audience that the clay products industry has no shrinkage problem. If our failure to

*(Continued on page 265)*

# *American Concrete Pipe Association Holds Second Short Course*

another ON THE SPOT report

THE American Concrete Pipe Association held its second annual short course school of instruction on November 20-22, 1952, at the Sherman Hotel in Chicago. Judging from the large attendance, the diversity of subjects covered, and the great interest expressed by the concrete pipe group, the second short course was another success. More than 100 men, including several from eastern Canada, participated in the school.

By KENNETH A. GUTSCHICK

More than 100 persons attended the A.C.P.A. Short Course. Participating in the program were (left to right): T. H. Monaghan, sales representative, Universal Concrete Pipe Co.; Ivy H. Smith, president, Sherman Concrete Pipe Co.; Howard F. Peckworth, managing director, A.C.P.A.; and W. Wren, chief engineer, Universal Concrete Pipe Co.

The three-day session began Thursday morning with a welcoming address by Ivy H. Smith, president, Sherman Concrete Pipe Company. Mr. Smith stated that a school of this nature is valuable both to the individual concrete pipe producer and to the industry as a whole, since interchange of ideas leads to progress. He claimed that part of the large growth of the concrete pipe industry in recent years has been due to pipe manufacturers getting together at conventions and meetings of this sort and discussing common problems. Mr. Smith pointed out that ten years ago it was a rarity for pipe producers to visit each other's plants and exchange viewpoints; today there is much closer co-operation among producers.

John A. Ruhling, A.C.P.A.'s Washington representative, who spoke on his recent activities in Washington.

Mr. Smith also emphasized the magnitude of the American concrete pipe industry, stating it is estimated that in 1951 the industry, comprising approximately 500 plants, produced more than 10,000,000 tons of concrete pipe, with sales amounting to several hundred million dollars. Cement consumption exceeded 13,000,000 bbls., and approximately 340,000 tons of reinforcing steel were used in pipe manufacturing.

John G. Hendrickson, A.C.P.A.'s research engineer and also director of the short course, then gave a brief glimpse of this year's short course subjects. He indicated that the meeting would include important sessions dealing with the selling and promoting of concrete pipe and the use of concrete pipe in sewer and culvert construction, as well as a panel session on manufacturing problems. He mentioned that the subject matter of this year's school was based largely on the desires of the men who attended the first short course school.

After the preliminary talks, Howard F. Peckworth, A.C.P.A.'s managing director, discussed *Industry Affairs and A.S.T.M. Specification Changes.* According to the director, the Association has grown considerably during the last few years and now has a membership of 160. Mr. Peckworth also expressed satisfaction in the growing interest shown by the local concrete pipe associations, which number 11 in the United States; they include the following regional groups: New England, the Southeast, and the West and the following states: Georgia, Alabama, Pennsylvania, Illinois, Michigan, Oregon, Washington, and Texas.

In discussing concrete, Mr. Peckworth reiterated the pipe producers' claim that the concrete used in pipe manufacturing is the finest commercially-made concrete in the world, with some mixes exceeding 10,000 p.s.i. However, he stated that the design of a standard mix is still an unsolved problem, due to the variety of manufacturing methods and the variability of aggregates and other materials used in different parts of the United States. Thus, it is exceedingly difficult to design a mix suitable to all manufacturers.

Three members who participated in the technical problems panel included J. E. Miller, Lewistown Pipe Co.; R. C. Longfellow, The Cretex Companies, Inc.; and E. F. Bespalow, Choctaw Inc., moderator.

E. D. Rowe demonstrated an air-powered wire cutter during the panel session. Left to right: Jerry Seale, Valley Concrete Pipe and Products Co., Inc.; J. E. Miller, Lewistown Pipe Co.; E. F. Bespalow, Choctaw Inc.; Mr. Rowe; and W. L. McDaniel, Massey Concrete Products Co.

Mr. Peckworth also mentioned that tamped and packerhead pipe still represent the backbone of the industry, although the cast method is becoming more important, especially with the development of vibrators operating at higher and higher speeds. Centrifugal pipe remains of minor importance, principally due to the expense and difficulty involved in the manufacturing operation.

In discussing bedding and backfilling, Mr. Peckworth urged that producers inspect installations as often as possible to see that proper bedding and backfilling methods are used, even though technically this responsibility lies with the contractor. He also stated that in the last year there have been no advances in minimum cover and maximum cover, and that the depth of cover is still largely an experimental undertaking, which varies with the type of pipe, type of bedding, cover materials used, and other factors. He declared that great progress has recently been made in hydraulic pipe, through the development of better coefficients of flow.

Regarding competition from other pipe, Mr. Peckworth stated that the clay pipe industry, although enlarging slightly, did not grow as much as the concrete pipe industry. Evidence of the concrete pipe's leading position is the fact that some clay pipe companies are buying concrete pipe plants. Mr. Peckworth expects the stiff competition from corrugated pipe to continue, while cast-iron and steel pipe competition will still remain minor threats. Transite pipe, particularly less than 21 in. in size, is expected to become a stiff competitor to concrete pipe.

Mr. Peckworth touched on the hydrogen sulphide problem, stating that the problem is greatly exaggerated by competitors. He also pointed out three recent trends in the concrete pipe industry, including the manufacturing of longer lengths, the use of rubber joints in sewer construction, and the production of a better quality of concrete.

Specifications were then discussed by Mr. Peckworth, who is a member of the C-13 specification committee of the A.S.T.M. He reported that Specifications C-75 and C-76 were changed so that they now include the use of steel reinforcement for all pipe sizes. This change was made because some pipe producers confused the steel requirements in C-14 with those in C-75 and C-76. Other changes include the substitution of the fill test for the hydrostatic test in C-14 pipe; the use of steel in the three-edge-bearing test instead of timber; and the revision of the absorption test. Mr. Peckworth also reported that the A.S.T.M. is presently making a detailed study of the strength of welds used in wire reinforcement cages. He urged that concrete pipe producers send in samples of their welds for this study.

The concluding Thursday morning talk was given by John A. Ruhling, recently-appointed Washington representative of the A.C.P.A., on *Washington Affairs as Related to the Concrete Pipe Industry.* In discussing the Association's activities in the nation's capital, Mr. Ruhling pointed out that his duties include the direct promotion of the use of concrete pipe over competitive products, the indirect promotion of good will for the industry, and keeping A.C.P.A. members informed on latest Washington developments relating to the pipe field. Mr. Ruhling devoted most of his speech in describing the various Washington departments he has recently contacted in behalf of the concrete pipe industry. He displayed organizational charts of numerous organizations, including the Department of Defense, the Corps of Engineers, the Department of Commerce, N.P.A., the Bureau of Public Roads, the Federal Power Commission, the Department of Agriculture, T.V.A., the Department of the Interior, and other departments. He discussed each organization in detail, pointing out the specific branch(es) of each department most directly concerned with the various uses of concrete pipe. The main point brought out was that Washington represents an exceedingly important place for the promotion of concrete pipe because of the large number of organizations there which are concerned with concrete pipe.

The Thursday afternoon session was devoted to the use of concrete pipe in sewer and culvert construction. Because P. H. McGauhey, assistant director, Richmond Field Station, University of California, was unable to attend, his paper, entitled *Concrete Pipe in Sewer Construction,* was read to the group. It was followed with *Concrete Pipe in Culvert Construction,* presented by R. Robinson Rowe, California State Department of Highways. Interesting discussions followed each paper.

The two Friday sessions featured talks on sales and promotion of concrete pipe. The key to sales is the engineering department was the theme of the paper given jointly by T. H. Monaghan, sales representative, and Walden Wren, chief engineer, both of the Universal Concrete Pipe Company, Columbus, Ohio. The presentation of the paper entitled *Selling and Promotion of Concrete Pipe as One Large Company Sees It* proved to be very effective, with Mr. Monaghan discussing general sales promotion ideas and Mr. Wren the technical sales engineering data. In this way the pair demonstrated how they work as a team in the actual promotion of their company's product.

Mr. Monaghan began by stating that due to increasing competition in the pipe field, a pipe producer is forced to do a good job of selling. Years ago, he said, a salesman's main asset was his personality; today he should also have a technical background and should be able to present his product intelligently. Recognizing this fact, Mr. Monaghan re-

Craig Cain and Russell Englehardt, Continental Concrete Pipe Co.; R. L. Ramsey, Ramsey Concrete Pipe Co.; T. A. Thomas Jr., Thomas Concrete Pipe Co.; and Gus Marker, Gus Marker Block and Tile Ltd., Kingston, Ontario.

J. G. Hendrickson, research engineer, A.C.P.A.; R. C. Longfellow, The Cretex Co., Inc.; L. C. Cain, Chicago Fly Ash Co.; Dick Carroll, Sherman Concrete Pipe Co.; and G. B. Richmond, Union Concrete Pipe Co.

ported that his company, which operates 20 plants in the East and South, now has a graduate engineer for each sales district. Their viewpoint is that the man who ultimately determines the type of pipe to be used on a job is in most cases an engineer; consequently, it is logical to employ engineers in the sales department.

Mr. Monaghan also told of various advertising methods used by Universal, including magazines, catalogues, radio, television, newspapers, and exhibits. In addition, Universal also publishes technical brochures and a bi-monthly magazine called *Pipe Dreams,* which is distributed to approximately 22,000 persons. The sales department also sends out promotional letters and follow-up post cards. In addition, the department keeps abreast of latest construction developments, through study of leading trade journals and newspapers. Universal has also produced a film dealing with pipe manufacturing and installation which proved to be extremely helpful in sales promotion. In one specific case the showing of the film led to the company selling pipe for a large project which was originally to be monolithic.

Mr. Wren contributed his part to this excellent sales promotion presentation by reading portions of actual technical reports used on the job. In these reports he presented logical technical arguments for the use of concrete pipe over competitors.

In concluding, the speakers felt that in spite of Universal's energetic sales promotion program, the company's job of promotion is still in its infancy. They indicated that much work needs to be done, particularly in the field of state and local building and road codes, which in some cases are outmoded and restrict the use of concrete pipe.

In a speech on *Selling and Promotion of Concrete Pipe as the Association Sees It,* John H. Ruhling advocated creative salesmanship on the part of the pipe company. He claimed that pipe producers can find a vast market for their product in such fields as stream pollution control. He gave examples where large amounts of concrete pipe have already been used to divert sewage from rivers. There is an urgent need for additional similar projects, particularly in older urban communities. As a possible lead to the location of future pollution control projects, Mr. Ruhling cited recently-published government drainage-basin studies, such as the Missouri River basin report, which contain maps showing serious stream pollution areas. He recommended that producers study these government bulletins and then commence a program for promoting the use of concrete pipe in these pollution districts.

Mr. Ruhling also displayed a recent government poster on pollution control, in which concrete pipe is shown being used for conveying waste material.

The Friday afternoon session featured talks on *Fundamentals of Salesmanship,* by Dr. B. Franklin Bills, lecturer on marketing, Northwestern University, and *Selling and Promotion as the Association Sees It* by Howard F. Peckworth.

The short course was concluded on Saturday morning with an excellent panel discussion on *Technical Manufacturing Problems.* Participants included the moderator E. F. Bespalow, vice-president, Choctaw, Inc.; Craig Cain, Continental Concrete Pipe Corporation; R. C. Longfellow, The Cretex Companies, Inc.; W. Lyle McDaniel, Massey Concrete Products Company; J. E. Miller, Lewistown Pipe Company; and Jerry Seale, Valley Concrete Pipe and Products Company, Inc.; in addition, many in the audience participated.

The panel had planned to discuss a list of 30 technical problems which were requested beforehand by various Association members, but due to the great interest shown by the panel and audience and the lack of time, only half of the problems were discussed.

Diverse opinions were expressed regarding the value of admixtures in a concrete mix, some claiming that the additives are not needed and others that they are extremely useful in adding workability, reducing sulphate resistance, preventing freezing, and speeding hydration. They all agreed that more experimentation must be done on use of admixtures, particularly since they are known to react differently with different cements, etc.

Varying opinions were also expressed on the amount of assistance the producer should give the contractor in laying pipe. It was agreed that legally the manufacturer has no responsibility, but that it is wise for him to follow up sales and give advice wherever possible.

One operator claimed that torsion cracks in machine-made pipe can be eliminated by making stiffer upright cages and by using a plastic mix which has as much water and coarse aggregate as possible.

Mr. Miller discussed the use of a specially-machined steel form joint

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# How to Make a Slow Day Pay At Your Concrete Products Plant

By DAVID MARKSTEIN

IT WAS a wet, cold, miserable day. I had gone into the concrete company's office with a friend who wanted to inquire prices. The manager was a friendly fellow; and while drying off, I used that universal opening gambit, the weather, to open a conversation. "This weather," I ventured, "is probably knocking heck out of your business, isn't it?"

"I wouldn't say that," he answered. "We used to have slow days, slow seasons, too. But not since we started on a plan to make them *sales days.* Now we use them to do some of our best selling."

I asked him the gimmick.

"See these?" he asked, holding aloft about 150 government postal cards. "Well, those turn slow days into sales days. I like to contact customers with news about new lines or services which will interest them. Most days, we haven't time for this little personal touch. So on the days you call slow ones, I write short notes to my regular customers. Sometimes I tell about ideas I know will interest one or another. These are not form messages. I can get out a pretty good number because I'm not rushed, and I can take time to make the messages really personal. Oh yes, we generate sales on what used to be slow days."

A slow day can be an opportunity for catching up with the comic adventures of Dick Tracy. Or such a day can be used as this firm used them. Here are a number of make-the-slow-day-pay ideas:

*Study your sales.* "It is true," one manufacturer says, "that in nearly any outfit, a relatively small percentage of the line produces an out-of-proportion share of volume and profits. It is just as true that few of us have time for the kind of week-to-week study that tells what these are and so guides us in either promoting the slow movers or else going all out on the fast items. You can't do that job every six months and give yourself the sort of weekly sales control you should have.

"The plan here is to utilize slow days for *trend* studies — giving a current guide for effective sales promotion on the days when conditions outside our control don't slow things down."

*Analyze jobs.* In these high-cost days one of the few remaining ways a concrete manufacturer is able to reduce overhead is by improving the work individual employees do. Big outfits can afford aptitude tests. Smaller ones can do nearly as well with job analyses — the kind that can be handled on a rainy, slow-sales day.

What's a job analysis? You need only a few sheets of paper, a pencil, and an idea or two. The first step is to list the jobs. Then break every function of each, every step the employee who holds it is required to do, including — if the job calls for it — emptying wastebaskets at the end of the day. When an analysis sheet has been made for each person including yourself, study whether shifting a job from one man to another might not improve efficiency. Study whether each man is in the work he is best fitted to do, or whether the load might not be juggled around in order to make every employee something more of a specialist. Personnel counsellors frequently call this assembly-line assigning, after the manner in which specific tasks are allotted to production workers.

*Bring back old customers.* A slow day is a fine opportunity to study the records. The inactive firms that haven't been buying lately have usually stopped for a reason. Have they given you up because of some grievance? One company in the Middle West uses a bring-'em-back buying plan. It starts with an individually-typed letter that asks frankly whether the customer happened to be displeased about something, and requests him to call for a chat so that the trouble can be corrected. If this brings no answer, the next slow day is utilized for a personal telephone message to get him on the books once more.

• Job analysis is a sound first step toward reducing costs, and it can be handled easily on a slow day.

• Business magazines are the idea exchanges of the industry. They make profitable reading on slow days.

*Improve warehousing.* Here's what warehousing experts say can be done to streamline operations (and reduce wasted time):

Begin by setting up a location system. Everything has a stated place. Related items are together.

Next, plan for efficient flow. Things should come in one end and move in a straight line toward the point of final use, with no criss-crossing or shifting around. Finally, educate all employees to the why and how of the plan.

"We found," says one manufacturer who recently set up a warehouse streamlining plan, "that the time employees spent *looking* was reduced by about 60 percent. We added several hours a week to our schedule without extending the closing time by a single second."

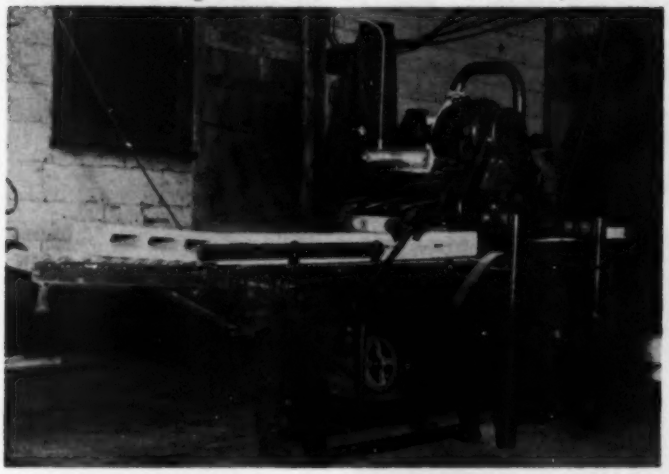
*Sell over the phone.* When for any reason the day is a slow one, this is the time when salesmen can take to the telephone lines, calling regular customers and even cold prospects.

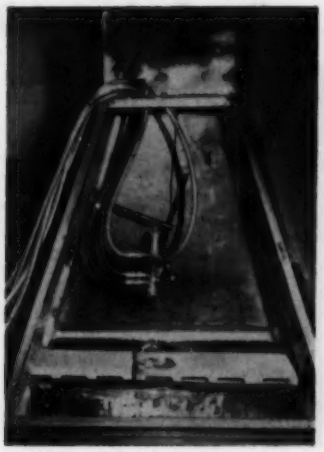
*Inquiries you haven't answered.* Often the questions, complaints and the commendations that people write in aren't answered as quickly as they should be because of the press of work. A quiet day is an excellent opportunity to dictate answers to customers' letters. There is no better way to show how highly a customer's business is valued than by handling his correspondence quickly —and personally.

*Catching up on business reading.*

*(Continued on page 269)*

# New Color-Glazed Block Coating Developed for Concrete Masonry





• This prism-shaped booth contains the filler gun; it is vented to the waterwash.

**By E. G. HURST**
Krete Koater Service

A NEW permanent glazed block coating, developed by The Sherwin-Williams Company, Cleveland, Ohio, and trade-named Kem-Krete, has recently been made available to concrete block manufacturers. The result of extensive research, Kem-Krete is a combination of two organic fluid materials that may be applied to a masonry unit of any dimension or shape, using special equipment made available to producers by Krete Koater Service of Hillsboro, Ill. After application, the locked-in block coating becomes an integral part of the concrete unit; it is said that under test the concrete surface will fail before the coating film is broken.

Kem-Krete blocks may be produced in two types of finish: a glazed coating, which provides a continuous film over the entire block surface, and a textural coating, which creates a surface that retains the natural acoustical characteristics of the original surface. The new glazing material is made in 20 standard shades, including tints of gray, blue, green, red and yellow; however, any color can be matched by special order. Kem-Krete can be stored indefinitely in the original container, and the nature of the material is such that it can be recoated or retouched after the block unit is installed.

The application machine, named the Krete Koater, can be operated by three men to produce 2,000 glazed units or 3,000 textured units in an 8-hr. period.

• A view from take-off end of machine, showing blocks being placed on the conveyor. At the prism-shaped booth the filler coat is sprayed on the blocks. The metal rectangle ahead of the filler booth contains squeegees above which are the dials controlling the material and the air line to the spray guns. The waterwash booth (right) shows the final color application.

• Blocks placed on the power unit conveyor are sanded, brushed, and vacuumed prior to entering the filler booth.

The blocks are fed on the conveyor of the machine surface dry, at about room temperature. They are sanded, vacuumed, and cleaned, and then the first coat, a colorless filler, is sprayed on the surface. This filler is then squeegeed into the pores of the surface, and the final coating is immediately applied. The blocks are then removed from the conveyor and placed on regular pallets. Racks with coated blocks are kept in curing areas with temperatures of above 65 deg. F. for 16 hours, after which the blocks may be cubed. The curing process involves a chemical copolymerizing action that does not require firing or other high temperature processing to transform the coating into a tough, resilient solid.

The application machine is equipped with waterwash booths at the spraying points. These serve to eliminate any odor or air-borne material. In the final booth a turn-table and hand-operated gun permit the coating of an unusual shape or special unit.

In addition to meeting the A.S.T.M. specifications for opacity and acid-resistance, Kem-Krete surfacing is said to be impervious to ink stains. It will not craze when subjected to autoclave tests, withstands 20 cycles of freezing and thawing, is unharmed by steam or hot water, and will not shatter or mildew. It shows no marring or deterioration when subjected to prolonged contact with such materials as caustic soda, hydrochloric acid, trisodium phosphate, etc.

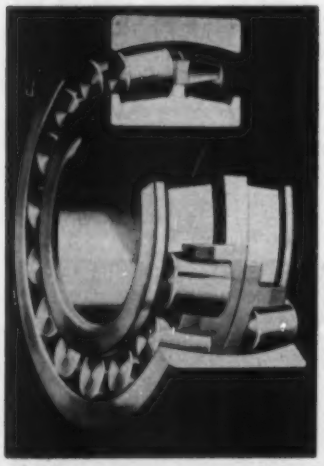
Kem-Krete surfaced units are now being produced in the following plants: Dura Crete Products, Inc., Muncie, Ind.; Peyton's Concrete Products Co., Benton, Ill.; and Gage Bros. Concrete Products Co., Sioux Falls, S. D. Pilot plant operations began at the Peyton plant in April.

The development of the coatings was done under the direction of G. L. Hehl, general manager, Industrial Division, The Sherwin-Williams Co., Cleveland. The Krete-Koater application equipment was designed by T. B. Shinn, Krete Koater Service, Hillsboro, Ill.

# New Equipment Developed in 1952

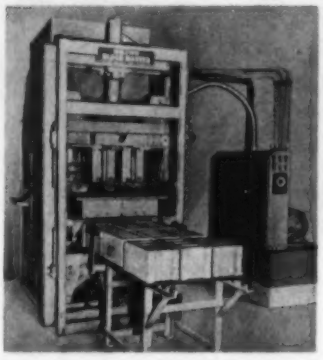
**GENE OLSEN CORPORATION,** Adrian, Mich., brought out a two-mold plain-pallet block machine. The "Gocorp King" has one mold being charged and packed while the other is being finished and stripped. This results in a compact machine with a production of 18 8-in. units per minute.

The machine is fully automatic, hydraulic drive, front pallet feed with resonant vibration. The magnetic offbearer handles two pallets each trip and returns with two empty ones that are discharged into position below the loaded ones, turned over, scraped and oiled automatically.



**BANTAM BEARINGS DIVISION, THE TORRINGTON COMPANY,** South Bend 21, Ind., are producing spherical roller bearings that are able to compensate for about 3 degrees of shaft misalignment. These bearings are made with straight or tapered bores and in numerous sizes. They are recommended for heavy-duty applications, especially with radial loads.

**SURFACE PROTECTION COMPANY,** 16833 Euclid Avenue, Cleveland 12, Ohio, is marketing a concrete masonry paint. "Bloc-Seal" is an oil-base, single-coat material containing a fine grit in a heavy composition. It is claimed to cover discolorations and stains. The material is resistant to lime, alkali, salt, mold, and may be applied to old or new surfaces, either dry or damp, of cinder block, concrete block, brick, stucco, tile, asbestos siding, and monolithic concrete. It is made in seven colors.



**THE MULTIPLEX MACHINERY CORPORATION,** Elmore, Ohio, perfected the "Blockmaster No. 3." This is a plain pallet 3-block machine that will make any style or size of block using any aggregate. It is hydraulically powered by a separate unit that may be used to power other machines. The blocks are compressed by a combination of pressure, vibration and tamping with moving parts being held to a minimum.

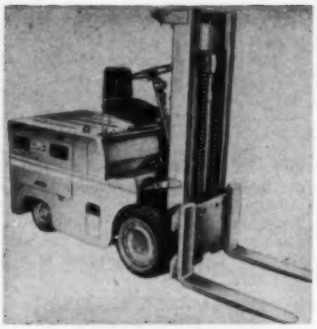
**BUDA COMPANY,** Harvey, Ill., produced a new line of fork lift trucks. The "FT" series of trucks includes 12 models ranging from 3,000 to 7,500 lb. capacity at 24-in. load center. Over 85 percent of the parts are interchangeable between all 12 models. All of them may be had in mast heights of 72-, 84-, 108-, 114-, and 120-in. lift.

Power is supplied by either a Buda gasoline or a Buda diesel engine of identical bore, stroke, displacement, and mounting dimensions. They have two speeds forward or reverse controlled by a single shift lever and a heavy-duty clutch.

**DEWEY AND ALMY CHEMICAL COMPANY,** Cambridge, Mass., introduced "Daracone" a high-silicone-content material designed for use on exterior masonry. It is said to repel water without sealing the pores. There is no surface film produced and no discoloration or efflorescence. Daracone is recommended for use on concrete, brick, cinder block, and other porous surfaces.

**JAEGER MACHINE COMPANY,** Columbus, Ohio, developed a flexible design in truck mixers, the "Mix-Plus." The design uses a basic machine that consists of drum, frame, front trunnion, drum roller assemblies, and fast charging and discharging drum construction. A catwalk, mud-guards, and 3-piece swing-away chute are standard.

Choice of equipment to suit individual needs includes: open-end type loader; end loader with seal; removable top door; Continental or Chrysler engine; power-take-off adapter; several types of transmissions; several water systems; and high pressure water injection system.



**INDUSTRIAL TRUCK DIVISION, CLARK EQUIPMENT COMPANY,** Battle Creek, Mich., announced two models of "Utilitruc" fork-lift trucks, in the 6,000- to 7,000-lb. range.

Featured on the new models are: a fork mounting that permits interchangeability of attachments; free lift of 25 in. without an increase in mast height, and greater visibility.

One model is powered by electric motors operating from storage batteries, and the other has a gasoline engine operating either through a "Dynatork" drive or a quick-change clutch to constant-mesh reversing gears.

**KWIK-MIX COMPANY,** Port Washington, Wis., added a 5-ft. power-driven fork lift attachment to their "Moto-Bug." The fork fits on the front of the Moto-Bug and has a 1,000 lb. load capacity at 15-in. center. A hydraulic pump powers the attachment through a hydraulic ram. It is interchangeable with other attachments for the machine such as hopper or scraper blade.

**TRACTO-LIFT COMPANY,** 2011 Baltimore Avenue, Kansas City 8, Mo., marketed their "Tracto-Lift" fork truck. This embodies a standard heavy-duty industrial tractor with minor modifications such as reversing of the transmission, seat, and steering mechanism. A fork lift is mounted on the front. It is able to operate on any surface that the tractor can negotiate.

**KENT MACHINE COMPANY,** Cuyahoga Falls, Ohio, introduced the "Duplex Blockmaker." This model produces only two blocks per cycle, and uses mold boxes that are interchangeable with the ones on the standard model.

**UNITED STATES RUBBER COMPANY,** Rockefeller Center, New York 20, N. Y., is making a natural rubber spout reinforced with fabric for handling concrete from batch mixers to trucks. It is said to remain flexible, and free of clogging.

**MOTOROLA,** Chicago 51, Ill., introduced a simplified communications receiver for use with mobile radio units. The set uses 14 tubes of 5 standard types and can be easily serviced without complete removal of the set. The set can be adapted to split-channel operation.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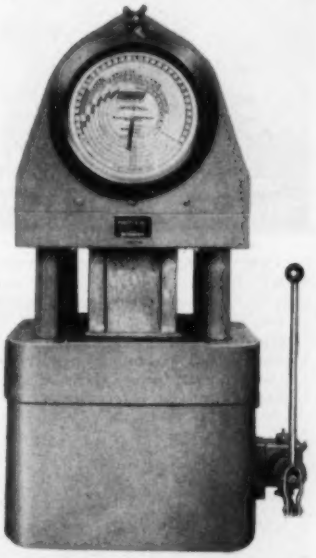

CONTROL YOUR MANUFACTURING OPERATION

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SELL — **The User** — **Architect** **Contractor**

CONCRETE — **For Attractiveness** — **Noise Absorption** **Fire Safety**

**WRITE FOR NEW BROCHURE DESCRIBING TESTER**

FORNEY'S INCORPORATED

Manufacturers of Special Machinery Since 1916

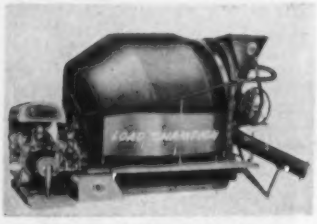
203 ELM ST. NEW CASTLE, PENNSYLVANIA

**ARTHUR REHBERGER AND SONS,** Newark, N. J., introduced an unloading device for trucks hauling concrete blocks, brick and similar materials. The device consists of a special tilting top and mechanism that is mounted on a truck. The bed is equipped with rollers and the load is gently eased off by releasing a holding cable. It is claimed that the load can be discharged in ten minutes with virtually no breakage.

---

**COOK BROS., EQUIPMENT COMPANY,** 1815 North Broadway, Los Angeles 31, Calif., added a 3½-cu yd. mixer to the "Challenge" line.

The 3½-yd. machine is designed to handle the full amount of specification mix on a two-axle truck. This model completes the range of sizes conforming to the N.R.M.C.A. rating made by the company.



**TRANSMISSION AND GEAR COMPANY,** Dearborn, Mich., brought out the "Transo Load Champion" truck mixer. This mixer has a 3- or 4-cu. yd. mixing drum, a planetary reversing transmission, and a large water tank. One model is powered by a Ford industrial engine while the other uses a power take-off.

The drum is driven directly from a planetary type reduction gear so that ring gears, chains and sprockets are unnecessary. The short length and light weight of the mixer makes possible the use of a lighter weight truck chassis, and adds to maneuverability and handling ease.

**PHILADELPHIA DIVISION, YALE AND TOWNE MANUFACTURING COMPANY,** Philadelphia 15, Pa., brought out an industrial fork lift truck powered by a diesel engine and a fluid transmission.

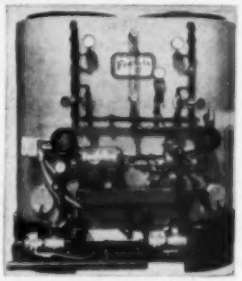
The machine is designed for use where heavy-duty operation and freedom from fire hazards are necessary. Power is supplied by a 6-cylinder Hercules diesel engine rated at 70 hp. This is coupled to a Twin-Disc hydraulic drive. Hypoid gearing, hydraulic brakes, automotive type steering and unit assembly of components are other features.

**T. L. SMITH COMPANY,** Milwaukee 45, Wis., manufactured a truck mixer that is powered by the truck engine. By eliminating a separate engine the total weight is reduced about 1,300 lb. and the length is reduced 19 in. The reduction in weight and the redistribution of weight from the rear to the front axle makes a greater legal payload possible. The new model is made in 4½-, 5½- and 6½-cu. yd. sizes.

Less fuel consumption and lower maintenance costs are additional features of the machine that are the result of eliminating the extra engine.

**HYSTER COMPANY,** 2902 N.E. Clackamas Street, Portland 8, Ore., announced two new heavy-duty lift trucks. The new models, the "ZA-80" and the "XA-60" have an 8,000-lb. and a 6,000-lb. capacity respectively. They are gasoline powered, mounted on pneumatic tires, and have a shorter wheelbase and overall length. Other features are: improved weight distribution; an easily changed long-life clutch; heavy-duty disc type brakes; and simplified operation and maintenance.

**CHAIN BELT COMPANY,** 1600 W. Bruce Street, Milwaukee 4, Wisc., brought out the "Rex Hi-Discharge Moto-Mixers." These include several new features including scientific designing by electronic strain gauge tests, drive and transmission under the drum in the rear, water tank over the cab, and end loading without spillage. The mixer can be mounted on any make of truck. Optional equipment includes closed end door, combination hopper and door seal, recirculating blade, drum guard, spout extensions, and water systems of double compartment or flush tank type.



**THE FRANCIS STEAM GENERATOR COMPANY,** Bellflower, Calif., is using an improved type of centrifugal pump on their models of steam generators used for producing steam for curing concrete products.

The generators produce steam in three minutes from cold starts and do not require the services of an engineer. Each generator has twin units for standby protection and a descaling system for cleaning the coils.

**CONCRETE MOLD AND ENGINEERING COMPANY,** P.O. Box 801, Louisville, Ky., marketed heavy-duty molds for stepping stones and splash blocks. The molds are made of 14-gauge steel and are welded at the joints. Several popular sizes are available.

**TOWMOTOR CORPORATION,** Cleveland 10, Ohio, developed a scoop attachment for its lift trucks, which will handle free-flowing materials such as sand and cement. The scoop is raised by the regular hoisting mechanism of the lift truck and is dumped by gravity. An automatic slice bar is optional to prevent spillage on rough surfaces. Sizes are available for all models of the company's lift trucks except the LT-90.

**MEDUSA PORTLAND CEMENT COMPANY,** Cleveland 15, Ohio, produced a prime coat for use primarily on lightweight blocks. The material "Medusa Ruf-Seal Cement Paint" fills the pores of the masonry and provides a surface for the application of paint. It is mixed with water and applied by brush.

# NEW MACHINERY and SUPPLIES

### • Automatic Block Machine

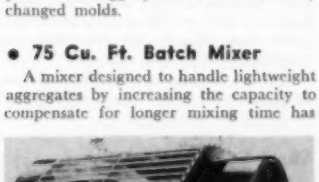
A hydraulic, continuous automatic block machine that makes two blocks per cycle has been announced by the Kent Machine Company, Cuyahoga Falls, Ohio.

The new machine, the "Kentwin", uses

plain pallets. It has synchronized dual motor vibration and positive height control. Automatic pallet return may be included. The machine is said to be compact and rugged, and to have easily changed molds.

### • 75 Cu. Ft. Batch Mixer

A mixer designed to handle lightweight aggregates by increasing the capacity to compensate for longer mixing time has



been developed by Gocorp., Adrian, Mich.

The new mixer has a capacity of 75 cu. ft. although no higher than a 50 ft. model. The mixer is powered by a 50 hp. electric motor and has an air operated discharge door and a "Mix-Timer" as standard equipment.

### • Air Powered Wire Cutter

An air powered wire and bolt cutter that will handle up to 000 gauge wire mesh is being manufactured by K and R Air Power Equipment Company, Canton, S. D.

The cutter is all steel and weighs 12 lb., and operates on 100 lb. air pressure.

The regular model is 20 in. long but a special model for cutting wire mesh has extension handles that make it 30 in. over all. The machine operates by a quick acting air valve controlled by squeezing the handle. This sends air into the cylinder and actuates the jaws.

### • Leak-Proofing Cement

The Peerless Cement Company, Detroit 26, Mich., has announced a fast-setting hydraulic cement for stopping water flow through masonry walls.

The new product, called "Dike", is cement-base compound that sets and dries in a very short space of time. It is especially designed for stopping leaks in basement walls, swimming pools, wash tubs, and for caulking or repairing chimneys, sills, and walls. It is easily applied by hand and sets in about five minutes.

### • Block Testing Machine

A new model compression tester for concrete blocks, lintels, cylinders, bricks, beams and staves has been developed by Forney Inc., of New Castle, Pa.

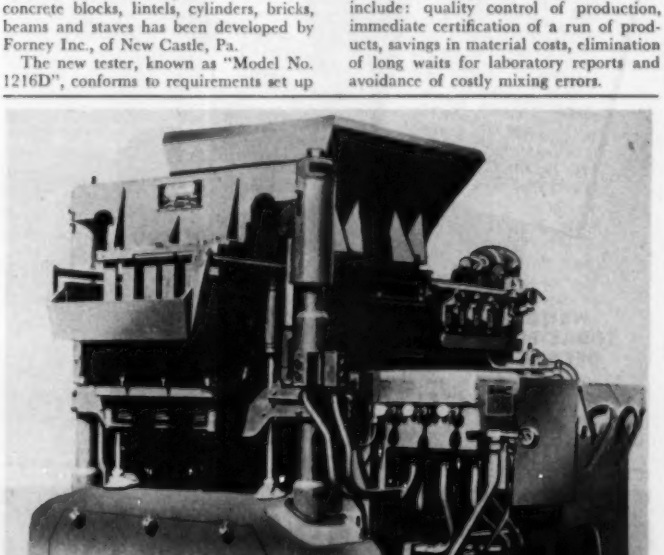
The new tester, known as "Model No. 1216D", conforms to requirements set up by the American Society of Testing Materials for this type machine.

The machine is produced in both manually and electrically operated models. Either model requires only an easy five minute operation which anyone can do.

Features include a direct reading dial

which gives immediate and accurate readings. This dial eliminates the chance of error in using conversion tables.

Chief advantages of using the machine include: quality control of production, immediate certification of a run of products, savings in material costs, elimination of long waits for laboratory reports and avoidance of costly mixing errors.



### • Three Block Machine

An automatic three-block concrete block machine has been placed on the market by Columbia Machine Works, Vancouver, Wash.

Designated as "Model 12", the machine will produce three standard blocks at the rate of four cycles a minute. Features of the machine include automatic pallet feeding; automatic offbearing; height control; easy mold change; and an unlimited variety of molds. While normally operated automatically the machine can be run manually if desired.

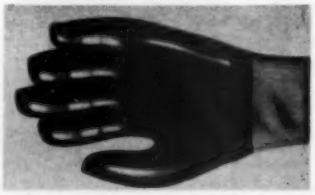
**• Hydraulic Mixer**

A hydraulically powered transit mixer is being marketed by the Imperial Construction Equipment Company, 3400 Lake Street, Melrose Park, Ill.

The "Imperial Hydrocreter" uses a double volume hydraulic pump connected with the truck engine to power a hydraulic motor that drives the drum through a two-speed reducer. This gives four drum speeds as the hydraulic motor is operated at fast or slow speed by the high or low volume of the pump and the speed reducer can be shifted to high or low. The speed of the drum is controlled from the cab. The drum has spiral blades, two of which are covered by a replaceable cover. This forms a tunnel that moves the concrete forward during mixing and assures a continuous end-to-end circulation. A one-piece 15 ft. discharge chute and a 5-ft. chute are standard. These are mounted on the truck and handled by a hydraulic cylinder. There are two sizes of Hydrocreters, one is a 4½ cu. yd. mixer and the other a 5½ cu. yd.

**• Protective Glove**

The Edmont Manufacturing Company, 1208 Walnut Street, Coshocton, Ohio, is using an improved Neox coating in its line of Neox coated fabric gloves. The new formula is said to have more flexibility, better gripping qualities, and is



more resistant to cuts, abrasions, grease, heat and solvents. It consists of a neoprene base with special additives that provide improved qualities.

The new coating is available in a wide range of styles, fully or palm coated, and in two service weights.

SEE THE *New* ADVANCE SPLITTER
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JAN. 26-29
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FEB. 1-4
MASONRY CONTRACTORS ASSN. OF AMERICA
Sherman Hotel, Chicago

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Built better to last longer!
PROMPT DELIVERY.
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## Short Course

*(From page 257)*

as a means of eliminating seam leakage of forms subject to high frequency vibration. E. D. Rowe, Canton Block and Tile Company, Canton, S. D., demonstrated a quick way to cut wire mesh through the use of a K & R air-powered wire cutter which he and an associate recently invented.

An interesting plant safety program was outlined by Ivy H. Smith, whose company, the Sherman Concrete Pipe Co., operates five plants in Georgia and Florida. Safety contests are held every three months, and the plant having the best safety record is treated to a barbecue or fish fry. According to Mr. Smith, this simple plan has reduced accidents to the minimum.

## S.E. Division of N.C.M.A.

*(From page 254)*

solve the shrinkage problem should mean being thrown out by the Corps of Engineers, the resulting black eye to both the product and the industry would be, in the speaker's opinion, far more serious than the actual volume of business directly at stake. We must face up to the shrinkage problem and solve it.

Mr. Streblow also noted that the industry's present annual expenditure for advertising and promotion is extremely small compared to either its total investment or its gross dollar volume. With a capable association staff to see that such funds are spent wisely, he believes the block industry should have no hesitation about increasing present expenditures for advertising by several hundred thousand dollars.

**Entertainment Program** Despite the very substantial amount of ground covered in the business and technical sessions at Miami Beach, those who planned the affair contrived to include a varied fare of entertainment. At a formal luncheon on the opening day of the meeting the group heard an inspirational address by Vash Young, internationally known author and lecturer. On another occasion the entire gathering attended a cocktail party and open-air water show as guests of the Miami concrete products manufacturers. Other entertainment features included a two-hour sight-seeing boat trip on Indian Creek and a floor show presented in conjunction with the banquet which marked the close of the program.

The following individuals composed the program committee for the meeting at Miami Beach: Paul Anderson, Maule Industries, Miami; Leon K. Camp, Camp Concrete Products Co., Columbus, Ga.; William R. Ireland, Atlanta Aggregate Co., Atlanta; Neil Jones, Florida Portland Cement Co., Miami; George Katterjohn, Katterjohn Concrete Products, Paducah; Lewis Lloyd, Alatex Construction Service, Inc., New Orleans; Hardy Magrath, Lehigh Portland Cement Co., Jacksonville; Major Maurice Oravitz, Alfred Destin Co., Miami; M. E. Rinker, Rinker Materials Corp., West Palm Beach; and Carroll Strohm, Nashville Breeko Block & Tile Co., Nashville.

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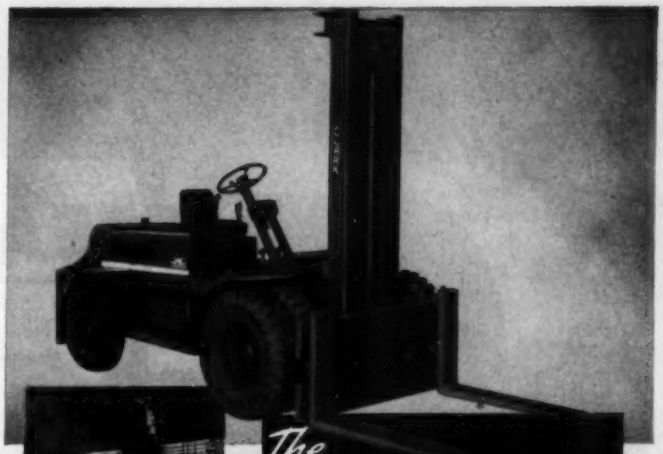
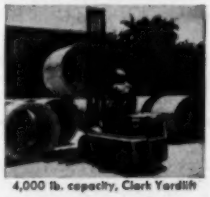
**Lease and patent rights of the Mortarless Interlocking Block Co. at Chula Vista, Calif., have been taken over by the Lower California Construction Company, Inc. New Hydraulic block making equipment recently installed has quadrupled the plant's output.**

15,000 lb. capacity, Clark Yardlift

6,000 lb. capacity, Clark Yardlift



4,000 lb. capacity, Clark Yardlift

2,000 lb. capacity, Clark Yardlift

*The*
**OUTDOOR TRUCK**
With
*Indoor Smoothness*

**The *New* CLARK YARDLIFT-100**—Here's the truck for heavy outdoor handling, Clark's *new* YARDLIFT-100. 5-tons of cargo—in lumber, building blocks, concrete and clay pipe, brick and tile, heavy metal products—handled smoothly over rough, rutted terrain. And power to spare for safe, easy high-tiering of those 5-ton loads.

Built to take the punishment of handling building materials on-or-off the job-site, the YARDLIFT-100 is a natural for all kinds of heavy, outdoor storage and handling. And Clark precision-engineering assures unbeatable efficiency over the long haul—long productive work-hours under the best or worst conditions, with amazingly low down-time.

Easy on the operator, easy on the load, the *new* YARDLIFT-100 is every bit as easy on the pocketbook. It's as cost-conscious as the company comptroller. You owe it to your profit-margin to take a look at the YARDLIFT-100. It will put real economy and efficiency into your handling picture.

*A phone call to your Clark dealer—he's listed under "Trucks—Industrial" in the Yellow Pages of the phone book—is the best and fastest way to get the facts and figures on this newest addition to Clark's famous YARDLIFT family.*

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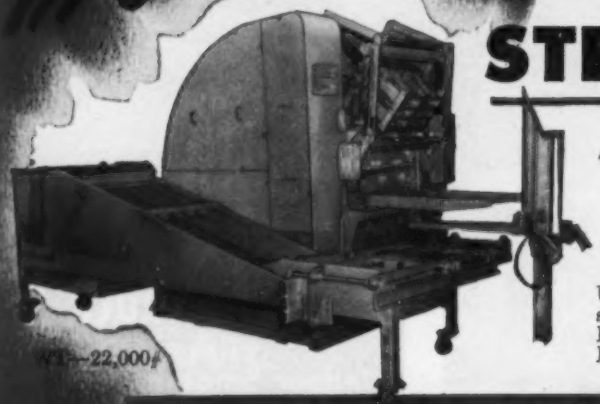
# In Commercial Milwaukee — 50

# STEARNS 15




**A New Advance in Concrete Products Machinery for the Larger Plant**

Fully Automatic • One-Man Operation • Finger-Tip Quality Control • 3-Blocks-per-Cycle • Adjustable 4-6 Cycles-per-Minute • Unidirectional Vibration under Pressure • Power Pallet Handling • Plain Pallets • Sturdy • Dependable • Low Maintenance.

**Three Typical Stearns 15 Concrete Block Plants in Milwaukee, Making a Complete Line of Standard and Special Concrete Blocks and Brick.**

**BEST BLOCK COMPANY**—3 STEARNS 15s, left. W. J. Manhardt, company president and past president of the National Concrete Masonry Association, says: "*We are more than satisfied with the performance of our company-owned Stearns 15s and with the excellent service given us by the Stearns Company.*" Paul F. Bronson, vice-president, is Chairman of the NCMA Technical Committee.

**WEST ALLIS CONCRETE PRODUCTS COMPANY**—2 STEARNS 15s, left, center. Henry Nagy, president, says: "*The Stearns 15 is one of the best concrete block machines made today. I am proud to own two of them. Stearns' parts service is excellent, too.*"

**DEVOS BLOCK COMPANY**—1 STEARNS 15, left, below. Arthur W. Devos, secretary of the Wisconsin Concrete Products Association, is President of one of the first concrete block plants in the Mid-West, (1917). Note well the statement of this "patriarch" of the Milwaukee Block Industry, based on his 36-year experience with block machines: "*The Stearns 15 is tops in production, ease of handling and quality of block.*"

**SPLIT-ROCK COMPANY**—1 STEARNS 15. Eugene Leipold, president, says: "*Having built my first successful block machine myself, I believe I have considerable knowledge of their mechanics. When the time came for expansion, I chose a Stearns 15, of course.*"

**ACME BLOCK CORPORATION**—1 STEARNS 15. Joseph Ullman, manager, says: "*The Stearns 15 is an excellent machine—produces blocks we are all proud of— and with no strings attached.*"

*As we went to press,* ***ECONOMY BLOCK COMPANY*** *Milwaukee, also had purchased a Stearns 15.*

STEARNS 15

STEARNS 50

ZIPPERS

JOLTCRETES

MIXERS

# MILLION UNITS CAN'T BE WRONG!

**50 MILLION STEARNS 15 CONCRETE BLOCKS,** made by eight machines in five plants, already have gone into more than 1500, a major proportion, of ever-growing Milwaukee, Wisconsin's commercial buildings, churches, schools, etc. of recent block construction, according to leading local suppliers. Stearns 15 units have also contributed to the beauty and livability of thousands of homes in this great, up-to-date, block-conscious area.

**WHY THIS OUTSTANDING RECORD?**

1 Stearns-made blocks are *well over* the high requirements of *all state and city specifications.*

2 Stearns-made blocks have a *better texture* than others—a clean-cut appearance for *both exteriors and interiors.*

3 Stearns-made blocks are *faster and easier to lay,* requiring fewer man-hours, because of their *uniform dimensions.*

4 Stearns *performance, consulting and parts service* are *more than satisfactory.*

5 In Milwaukee, as in every corner of the land, aggressive, down-to-earth, Stearns Block Machine-Owners follow the tested and proven *American formula for personal success and pride in achievement.* They work—

**ON THEIR OWN FOR THEIR OWN WITH THEIR OWN**

**—WITH NO STRINGS ATTACHED!**

**Three Typical Examples of Milwaukee's More than 1500 Large Commercial and Educational Structures, Built with Sturdy, Beautiful, Stearns 15 Concrete Blocks.**

***MILLPRINT COMPANY***—150,000 Stearns 15 units, supplied by Best Block Company, went into this huge Milwaukee structure, built entirely—exterior and interior—from concrete blocks. Best is supplying blocks for the National Container Corporation, now under construction, which will cover a full city block and require 100,000 Stearns 15 concrete units.

***ST. STEPHEN'S SCHOOL***—Stearns 15 concrete blocks are just as beautiful and functional for interiors as they are for exteriors. This spacious auditorium of St. Stephen's School in Milwaukee is just part of the entire project which required 50,000 Devos Company blocks. Mr. Devos also is particularly proud of the Milwaukee Dressed Beef Company which took 15,000 of his Stearns 15 blocks.

***TRACTOR TRANSPORT COMPANY***—Here is a good start by West Allis Concrete Products Company on the Tractor Transport Company garage, so far requiring 12,000 Stearns 15 blocks. West Allis also supplied 250,000 Stearns concrete units for the building of Averna College.

***OWNERSHIP—THE KEY TO SUCCESS!***

SKIP LOADERS

TURNTABLES

SINTERLITE

**STEARNS**

**MANUFACTURING COMPANY · INC**

ADRIAN • MICHIGAN

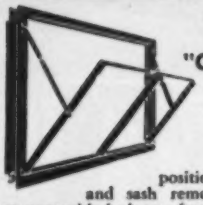
**For better, stronger window installations**

# VENTO

## STEEL BLOCK LINTELS

Ample load bearing capacity for windows or doors. Available from 2-ft. 6-in. to 5-ft. Formed from 10 gauge hot rolled steel with stiffening crimp in center. Beveled edge provides masonry bond and seat for mortar. Saves costs through use with standard 8-inch blocks. Vento pressed steel angle lintels for brick construction also available.

## VENTO STEEL BASEMENT WINDOWS



**VENTO "CHAMPION"**

Three sizes. Effortless operation gives three position ventilation and sash removal. Double contact with leak-proof water-shed sill stops wind and rain. 14 gauge electric welded frame. Fins welded to jambs for easy installation in block or poured walls.

**VENTO "THRIFTY"**

A real economy window for lower cost housing. Three sizes, sturdy construction, smooth operation, two position ventilation and easy sash removal. Fin flanges at jambs for quick installations.

***Also** casement, utility and barn windows. Write for full information.*

**VENTO STEEL PRODUCTS CO., INC.**
254 COLORADO AVE. BUFFALO 15, N.Y.


# Botched Batches

### Need a Lift?

THIS department has endeavored from time to time to keep its readers informed about what it regards as interesting developments in certain types of equipment. We have been accused, perhaps not entirely without justification, of a tendency

toward over-specialization. Much as we deplore the somewhat lopsided picture that inevitably results from this practice, we hold firmly to the belief that some models are just naturally more intriguing than others.

Take lift trucks for example. Most people can take 'em or leave 'em, but we think our readers will agree that the unit pictured here has—well, just a little something extra.

### The French They Are . . .

AN item in the Seattle *Times* imparts the fascinating intelligence that highway signs in French Morocco often consist of 10-ft. high concrete walls bearing the names of towns and distances, and calling attention to minor hazards of the road. Nothing like setting up a major hazard to call attention to a minor one, we always say.

### Not For Bored Stiffs

A PROFESSOR of speech at the University of Oklahoma has invented a gadget which measures the boredom of an audience by converting yawns and wiggles into wavy lines on a chart. At first blush it occurred to us that the device might be used to good advantage at some of the convention sessions we attend, but there's one serious flaw. The inventor appears to have assumed that the audience would at least stay awake.


## ★STAR THREADED SOCKETS

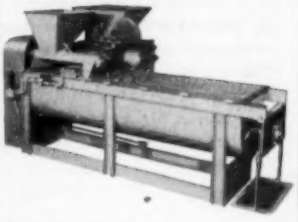
Specially designed inserts for the precast concrete industry.

Sturdy, non-corrosive metal, perfect threaded units, positive anchorage.

Special Assemblies for Park Benches, Steps, Fence Posts, Vaults, Septic Tanks and other concrete products.

**Star Expansion Products Company**
149 Cedar St.
New York 6, N. Y.

## *Jones* (formerly Yoder) CONTINUOUS MIXER



Embodies many successful new features, such as positive, non-clogging, vibrating belt feed, insuring constant volume of aggregate regardless of moisture content—no need for costly weighing equipment and moisture determinations.

Accurate proportioning through adjustable aggregate gates. Variable Speed drive for requirements ranging from 5 to 20 cu. yds. per hour. Cost only half that of batch mixer. More thorough mixing—gives up to 50% higher strength than 5-minute batch mix. Special advantages for lightweight aggregates. Illustrated literature and other information on request.

*J. A. Jones* CONCRETE MACHINERY
108 Morning Road, Pittsburgh 34, Pa.

## Slow Day Suggestions

*(From page 258)*

Business magazines (like this one) are the idea exchanges of every industry. "It's seldom I read mine cover to cover, that I don't run across at least one good, usable idea," a manufacturer told me recently. "It may be in the field of sales; it may be an example of a realy courteous letter; it may be an operational idea that reduced costs. And it *may* work for me!"

## Economy of Precast Units Cited by Roger H. Corbetta

Precast concrete units will supplant brick and plaster in building construction within the next 25 years in the opinion of Roger H. Corbetta, chairman of the Concrete Industry Board.

Mr. Corbetta, who is president of the Corbetta Construction Co., Inc., 220 East 42nd St., New York, and a pioneer in precast concrete construction, addressed 150 contractors, architects, engineers, and cement manufacturers at the C.I.B. meeting. His subject, *Brick and Plaster Are On the Way Out*, was illustrated with slide films showing a wide variety of commercial, industrial, and multi-family housing developments built with precast concrete sections.

He cited the growing trend toward precast concrete and challenged the architects, engineers and contractors to study its "unlimited possibilities."

He also emphasized that prestressing the reinforcing bars in precast concrete will make it possible to produce thinner and lighter units. This will mean additional savings in construction costs.

As an example of how buildings can be effectively insulated in concrete construction, Mr. Corbetta cited the methods used in the construction of the Kraft Food Company processing plant in Atlanta, Ga.

The precast concrete slabs were made at the job-site in concrete molds. The roof molds measured 5 ft. across and 22 ft. long. Molds for most of the wall units were 22 ft. square and 6 in. thick, but for the wall sections of the special cooling rooms, the walls were 8 in. thick. First, 2 in. of concrete were placed in the mold; then 4 in. of foam glass; then 2 in. of concrete.

---

Directors of Dewey and Almy Chemical Company have elected Hugh S. Ferguson president and chief executive officer. Bradley Dewey, who has been president since the company was founded retires from that office under the provisions of the company's retirement plan. Bradley Dewey was elected chairman of the board of directors.

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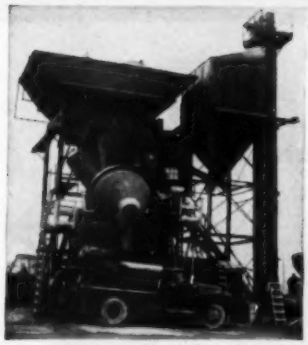
James S. McCullough has assumed charge of sales promotion for the Industrial Division of Gould-National Batteries, Inc., Trenton, N. J.


# COMPLETE PLANTS



## from a Single Source

- "Tilt-Up" Mixers
- Ready-Mix Plants
- Expressway Semi-Portable Plants
- Dry Batch Plants
- Cement Bins
- Aggregate Bins
- Cement Storage

## ENGINEERED TO WORK TOGETHER

From conveyor to elevator, from bin to mixer Burmeister equipment is designed and built by the same organization. Because each product is *"engineered to work together"* you are assured less costly "conversions," maximum production speed, accurate delivery of materials, and greater economy of operation. See your nearest Burmeister Distributor or write for details.

**FREE CATALOG**

Send for new 16-page illustrated Catalog of Burmeister Plants and Equipment.

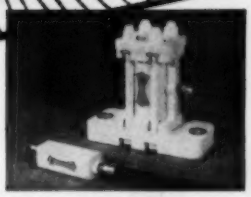
COMPLETE PLANTS FROM A SINGLE SOURCE

**Burmeister**

L. BURMEISTER CO., 4535 W. MITCHELL ST., MILWAUKEE 14, WISCONSIN



THE ABC's OF KEEPING CONCRETE MATERIALS ON THE MOVE!



It's easy, and QUIET, when you use a Cleveland Air-Cushioned Vibrator, known as the Type AC.

**A** Arching in bins and hoppers is eliminated by the efficient action of the piston vibrating back and forth.

**B** Bridging of dry materials is broken up quickly and quietly on operations where noise is a factor.

**C** Clogged cinders, coal, cement, lime, slag, concrete, etc., break up and start moving again with no loss from down time or wear on hoppers, chutes, screens, railroad cars or bins.

It's as simple as that—and we'll gladly send a FREE engineering recommendation for your problem. This product, like the Cleveland standard metallic impact vibrator, has 27 years' air vibrator experience behind it.

***BIN stuck lately?***

Catalog on request or we'll be glad to hear from you in more detail.

THE CLEVELAND VIBRATOR COMPANY

2710 Clinton Ave. • Cleveland 13, Ohio

# SEE IT JANUARY 26th

Don't miss the Concrete Industries Exposition in Cleveland starting January 26th. The big news there will be in the Rex booth . . . a great new development you simply can't afford to miss.

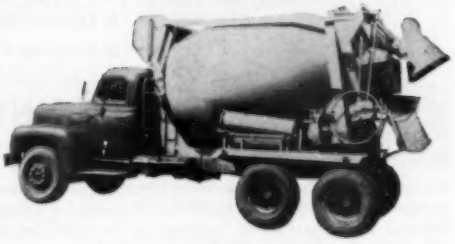
We can't tell you about it yet—see it at the show. But we *can* tell you that it fills a long-standing need in the Ready-Mix industry . . . that it's something of vital interest to every Ready-Mix operator in the United States . . . that it will more than pay you to be one of the first to take advantage of this great development.

# don't miss

## AND...YOU'LL ALSO SEE...

### ...the sensational Rex Adjusta-Wate Moto-Mixer

. . . introduced at last year's Ready-Mix Show . . . now proved with outstandingly successful field experience from coast to coast. With the Adjusta-Wate you put more weight on the front axle . . . carry greater legal payloads with best possible weight distribution. You have complete flexibility in mounting . . . complete flexibility in choosing a truck. And you have 16 options to choose from to give you a machine that exactly fits your operating needs.



CHAIN BELT REX COMPANY ®

Remember—it's the Rex Booth, Concrete Industries Exposition, Cleveland, Ohio, Jan. 26th through 29th

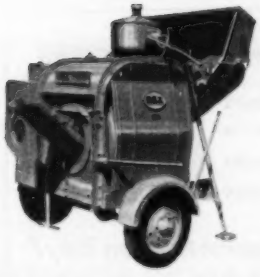
# it!

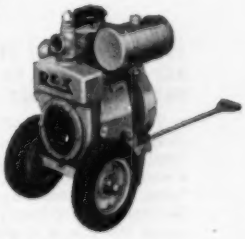
REX

## The Trade Mark of Quality

***also brings you the best in***

- **Building Mixers**
- **Plaster and Mortar Mixers**
- **Self-priming Centrifugal Pumps**





The Rex line of construction machinery includes a complete line of building mixers, ranging in size from 3½S to 28S; the finest in plaster and mortar mixers; and a complete line of self-priming centrifugal pumps, ranging in size from 4M to 90M g.p.h.

**See you at the show! For details on any Rex Mote-Mixer, talk to us there, see your nearest Rex Distributor, or write to Chain Belt Company, 4782 W. Greenfield Ave., Milwaukee 1, Wis.**

CONSTRUCTION MACHINERY

# *Americans Are Rolling Up Their Sleeves!*

***YES, ALL KINDS OF PEOPLE ARE GIVING BLOOD SO THAT OUR WOUNDED MAY LIVE!***

● Today, the blood of a Boston bookkeeper may be flowing through the veins of a wounded kid from a Kansas farm . . . the blood of a pretty Southern housewife may have saved the life of a grizzled leatherneck. For, blood is blood, a God-given miracle for which there is no substitute . . . and when a man's life hangs in the balance and blood is needed, there is nothing else to take its place!

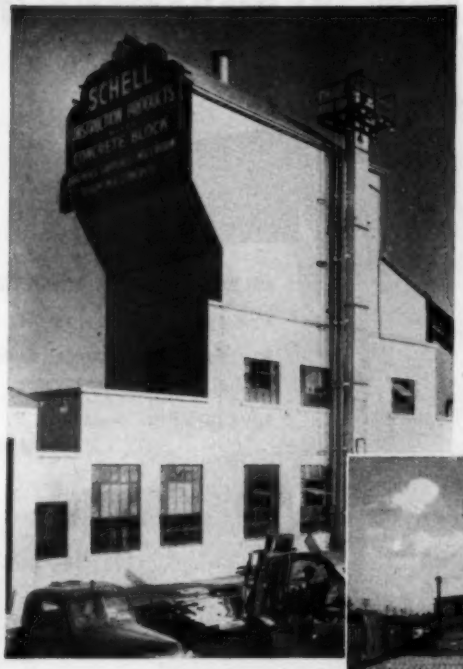
Right now the need for blood is urgent. In hospitals —at home and overseas— many men require four and six transfusions during delicate operations. And the blood *must be there*—when it's needed. So give the most precious gift of all—*your* blood!

Be assured that giving blood is neither difficult nor distressing. And what a thrill there is in knowing that you've performed a really unselfish act! So call your local American Red Cross today and make an appointment. And tell your friends and neighbors about your experience. Let them share the wonderful feeling Americans get when they roll up their sleeves—and give blood.

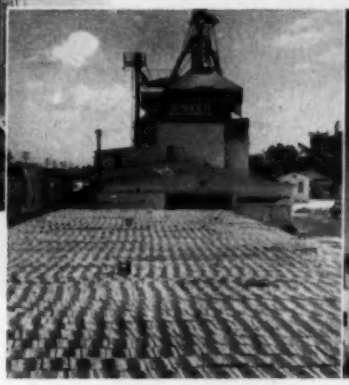
*But—*

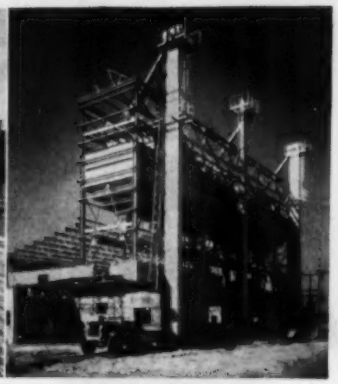
**WHAT HAPPENED TO THAT PINT OF BLOOD YOU WERE GOING TO GIVE?**

*Call Your American Red Cross Today!*




# YOU'LL MAKE A *Greater Profit* WITH A BUTLER· designed BLOCK PLANT





BUTLER has designed and built more modern concrete products plants than any other concern in the country.

Here are the reasons: BUTLER Engineers thoroughly understand your production requirements. BUTLER Engineers know how to simplify complex material handling problems. They take advantage of terrain and means of supply. Even climate enters their planning.

BUTLER Engineers attain an economical production flow with a minimum of manpower. They analyze your market, its potentials for growth and plan your plant accordingly.

But more, BUTLER Engineers give you the economy of standard manufacturing and fabrication — but applied in new and ingenious ways to your individual problem.

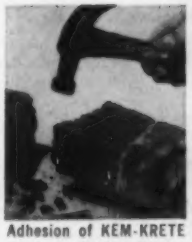
So as the very first step in planning your plant — *send for a BUTLER Engineer.*

**BUTLER BIN COMPANY**
**WAUKESHA, WISCONSIN**

# ANNOUNCING A TOTALLY NEW ACHIEVEMENT IN

- NEW BUILT-IN BEAUTY for INTERIOR WALLS
- Provides WALL and FINISH in one unit
- Withstands cleaning compounds...chemicals ... heat and cold ... impact shocks
- Glazed and textured finishes— 20 beautiful colors

## with SHERWIN-WILLIAMS KEM-KRETE



Adhesion of KEM-KRETE (used as a joint in this lab test) is stronger than cohesion of the concrete itself.

KEM-KRETE is literally "locked-to-the-block"—penetrates deep into pores before copolymerizing action converts it into a solid.

Now, for the first time, a new research development of Sherwin-Williams Laboratories makes possible a totally new construction material that opens up new possibilities—new savings—in all types of interior masonry construction.

Sherwin-Williams KEM-KRETE—a totally new, chemically evolved facing for application to standard concrete masonry units during manufacture—provides new, lasting, built-in beauty—eliminates need for costly, special facing or finishing operations after erection.

KEM-KRETE is unlike any previously existing material. Applied by a specially developed process, it becomes an integral part of the block—produces a tough, resilient, craze-proof, chip-proof, resistant, water-proof surface that withstands cleaning solutions, chemicals, temperature extremes and impact shocks. Supplied in 20 colors and in either glazed or textured finish, color-styled for interiors of homes, schools and commercial and industrial buildings of all kinds. See it at booths 130-131 at the N.C.M.A. Convention at Cleveland, or write for literature.

THE SHERWIN-WILLIAMS CO. • CLEVELAND 1, OHIO
GENERAL INDUSTRIAL DIVISION

**SHERWIN-WILLIAMS**

# INDUSTRIAL RESEARCH

## KRETE . . . and KOATER equipment

KRETE-KOATER equipment opens the way to new and expanded markets for block manufacturers—new profits from present business—new and highly important advantages over competition!

KRETE-KOATER equipment is a patented co-development of Sherwin-Williams Research Laboratories, especially designed for glazing concrete block with Sherwin-Williams KEM-KRETE materials. It provides a complete, simple, efficient, packaged unit which is low in cost and easily added or adapted to most existing operations, even of modest size.

No baking operations or special curing kilns are required—no special equipment for varying sizes. Standard equipment handles standard units from 1⅝″ to 12″ heights, including bullnose and special shapes. Continuous processing produces finished blocks at high production rates.

Investigate the new profit opportunities that KEM-KRETE and KRETE-KOATER equipment offers you—see it at the N.C.M.A. Convention, or write for details.

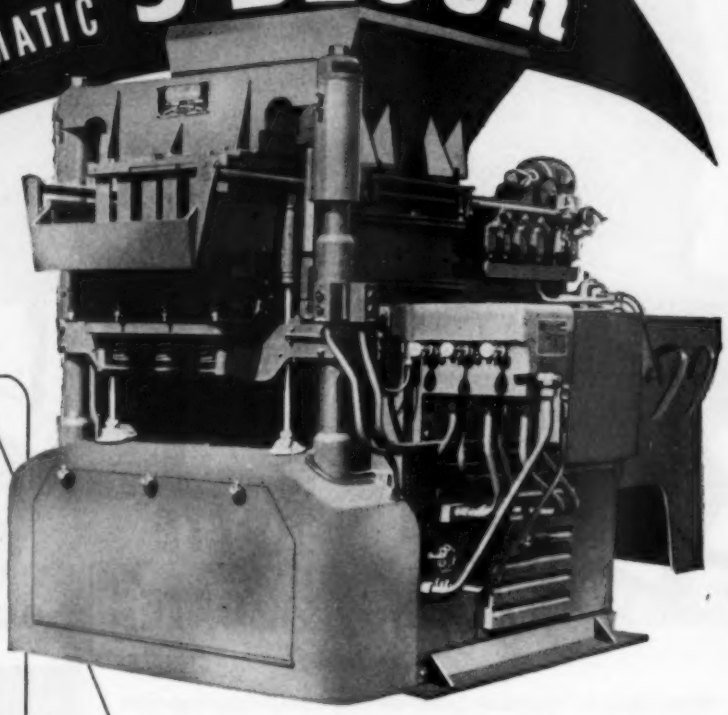
THE KRETE-KOATER SERVICE COMPANY
HILLSBORO, ILLINOIS

- New opportunities . . . new profits . . . for block manufacturers
- Low-cost equipment opens new markets . . . new volume business
- Simple . . . efficient . . . easily added to existing operations

# INDUSTRIAL PRODUCTS

# YOU ASKED FOR IT, and HERE IT IS!

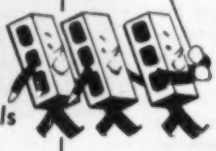
## THE NEW Columbia MODEL 12 FULLY AUTOMATIC 3 BLOCK



**Here are the reasons behind *Columbia's* outstanding performance:**

- ★ *Exceeds 4 cycles per min.*
- ★ *Standard plain pallet*
- ★ *Removable plunger*
- ★ *Controlled vibration*
- ★ *Hydraulically operated*
- ★ *Manual controls for clean-up*
- ★ *Automatic height control*
- ★ *Twenty-minute mold change*

These and many other features make the Columbia Model 12 an outstanding machine and a leader in its field.



**Here's the answer to your demands for an automatic Columbia with 3-block capacity! The Model 12 contains the same quality features which made its predecessor machines so popular PLUS added improvements to increase your plant's output and quality to a new profit-producing high!**

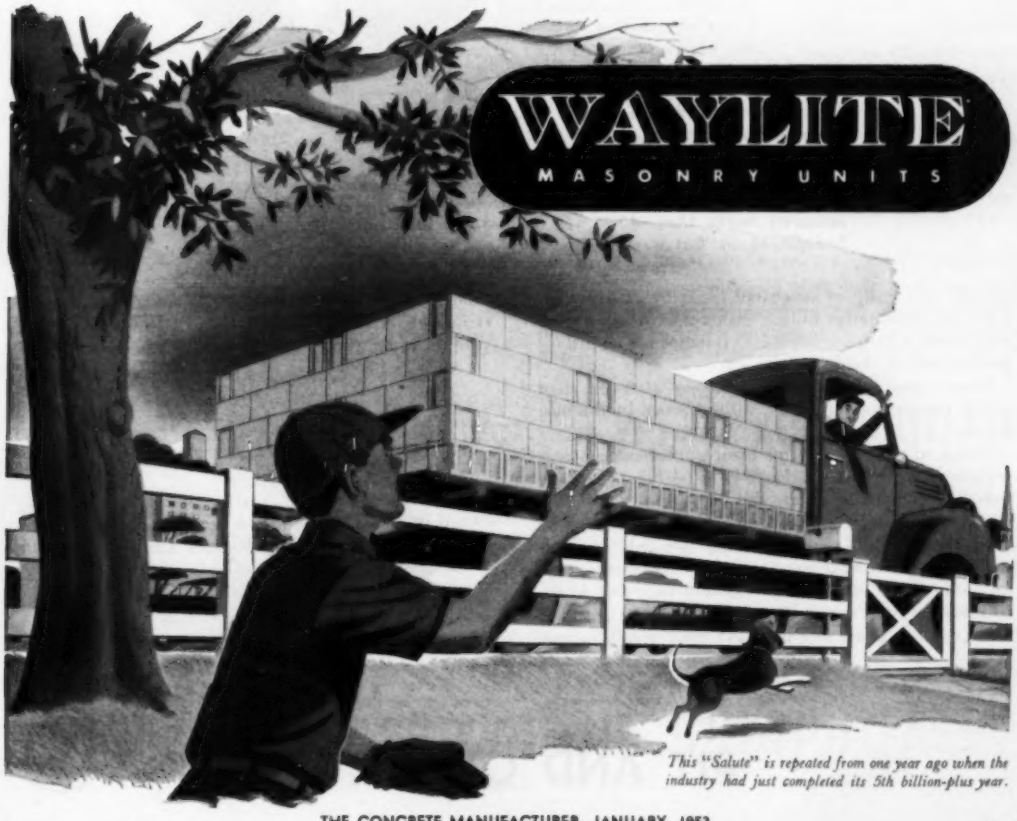
**NATIONWIDE SALES, PARTS AND MAINTENANCE SERVICE** with headquarters in the following states: Washington, California, Wisconsin, Mississippi, Florida, New Jersey, South Carolina, and Virginia. Fast service maintained to all parts of the country. Write today for additional information.

**Columbia MACHINE WORKS**
**107 S. GRAND AVENUE • VANCOUVER, WASHINGTON**

# A SALUTE TO THE *Concrete Masonry Industry*

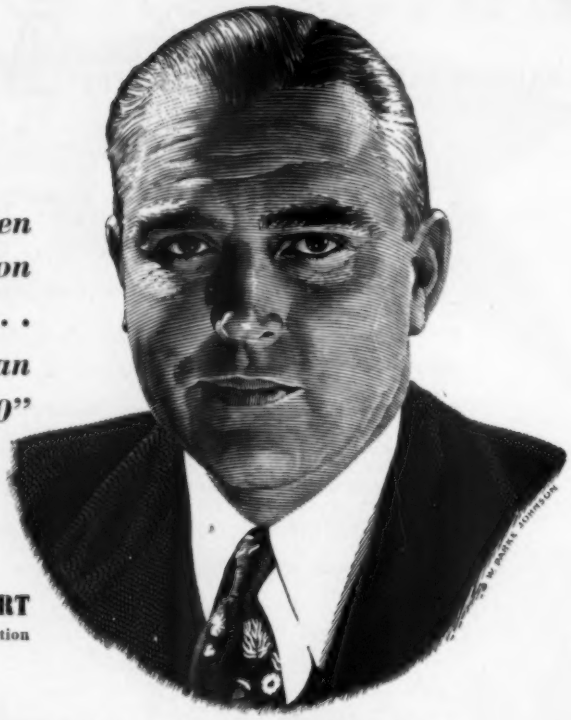
## ON ITS SIXTH SUCCESSIVE BILLION-PLUS YEAR

The remarkable record of the Concrete Masonry Industry during the past six years in producing the equivalent of over Six Billion sq. ft. of 8″ Masonry Wall Units has few parallels in building industry history. . . . This production has been equal to about two-thirds of all masonry walls built in the United States during this period. . . . This unprecedented growth of the Concrete Masonry Industry has been the direct result of the quality, utility and economy of concrete masonry walls, and the superior service of progressive locally-owned companies. . . . The Waylite Company is proud to be a part of such an outstanding industry in the construction field, and this seemed to be a good time to say so. . . .




*This "Salute" is repeated from one year ago when the industry had just completed its 5th billion-plus year.*

*"More than seven and a quarter million Savings Bonds . . . worth at maturity more than $236,444,000"*



**L. L. COLBERT**
President, Chrysler Corporation

***"A planned program of thrift is essential to personal, material security. The regular purchase of U. S. Savings Bonds can be a sound part of any savings program, along with investment in a home and proper insurance protection. Chrysler Corporation employees support the Payroll Savings Plan for the purchase of U. S. Savings Bonds. They have bought more than seven and a quarter million of the bonds, worth at maturity more than $236,444,000. Such systematic thrift not only benefits them, but strengthens the economy of their country."***

Largely as a result of consistent thrift by Payroll Savers, Americans today hold a cash value of more than $49 billion in Defense Bonds. This figure is $7.5 billion greater than at the end of the war.

Every month, 7,500,000 employees of more than 43,000 companies buy $150 million more in Defense Bonds.

Think of the reservoir of future purchasing power represented in the more than $49 billion that men and women have put aside for the proverbial rainy day.

Consider still another benefit to industry. The Payroll Saver is a serious worker. Records of many companies prove that lost-time accidents decrease, absenteeism is reduced and production improves as enrollment in the Payroll Plan goes up.

If your company does not have the Payroll Savings Plan . . . or if you have the Plan and employee participation is less than 50% . . . call the attention of your President or Chief Executive to

**Two Easy Steps to a Successful Payroll Savings Plan**

1. Phone, wire or write to Savings Bond Division, U.S. Treasury Department, Suite 700, Washington Building, Washington, D.C.
2. Your State Director, Savings Bond Division, will tell you how to conduct a simple, person-to-person canvass that will put a Payroll Application Blank in the hands of every employee.

That is all management has to do. Your employees will do the rest. They, like thousands of Chrysler employees, want to provide for their personal security.

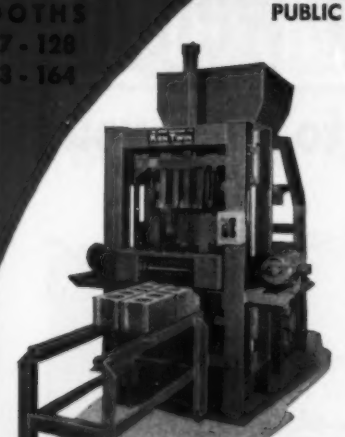
*The U. S. Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and*

**PIT AND QUARRY**

*See New Advanced Equipment*

# *at The* KENT CONCRETE INDUSTRIES EXPOSITION EXHIBIT

**PUBLIC AUDITORIUM — CLEVELAND — JAN. 26-27-28-29**



*See the New*

## KENTWIN BLOCK MAKER

### An Advanced and Simplified Plain Pallet Machine

A push-button controlled, hydraulically operated, automatic cycling block machine.

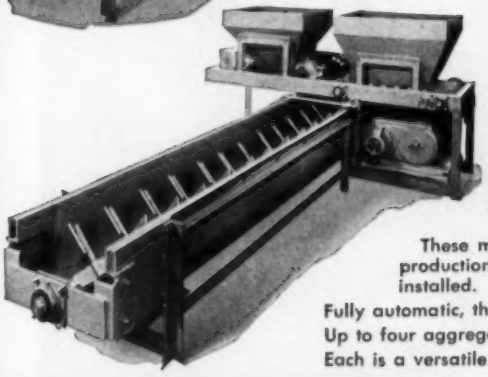
Makes two eight-inch blocks or equivalent; or brick, each cycle.

Embodies synchronized dual motor vibration and positive height control. Automatic pallet return available.

A compact machine combining exceptional accessibility with fast, easy mold changing.

Ruggedness, simplicity, anti-friction bearings assure smooth operation and long life with low maintenance cost.

See this machine. Study it. Ask questions. Then arrange for early installation and a new and satisfactory experience in block making.



## *See* KENT Standard & Duplex BLOCKMAKERS

The Standard is a semi-automatic machine that produces 5 to 6 smooth topped blocks per minute from any aggregate at a low cost per block.

The DUPLEX is similar in design and operation—a machine that produces two 8" blocks at each cycle.

## *See* KENT *Continuous* MIXERS

These machines, now available in several sizes and capacities, step up production, eliminate production problems and increase profits wherever installed.

Fully automatic, the operator Sets it—Starts it and Leaves it to attend to other duties.

Up to four aggregates can be fed with the proportion of each accurately controlled.

Each is a versatile machine since the number of paddles, their angle and position on the shaft are all variable—also the cycle of mixing and length of time the aggregate is retained is variable up to 12 minutes.

## *See the Versatile* KENT LINTELATOR

This exclusive KENT machine has taken the industry by storm since it produces better lintels, sills, etc., faster and more economically than by any other process.

AND IT OPENS A NEW MARKET FOR PROFITABLE SALES.

Sizes are available for making all practical sizes of lintels.

If you haven't yet installed your first LINTELATOR you're missing a good bet.

# *The* KENT MACHINE COMPANY

CUYAHOGA FALLS, OHIO, U.S.A.

***Manufacturers of*** **CONCRETE PRODUCTS MACHINERY** *Since* 1925

# Here's a new concept in light-weight

# Engineered weight

## designed to give you

**PRECISION BUILT,** two-compartment water tank assures accurate water measurement—even when mixer is not level.

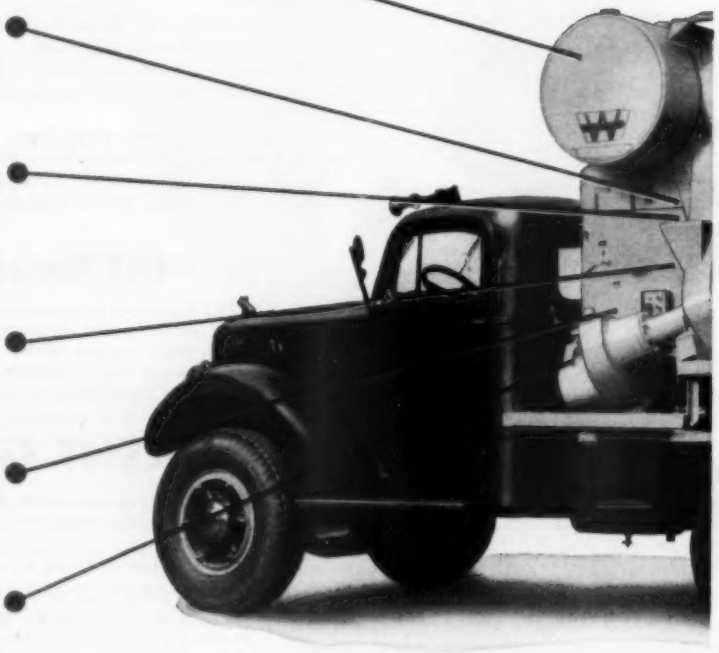
**SPECIAL STEEL DRUM SPROCKET** of unusually large diameter reduces torque, minimizes effects of starting and stopping with heavy loads.

**DRUM SPROCKET SEAT,** tire and drip ring end are machined *after* all welding is completed—thus eliminating possibility of heat distortion. Drum runs absolutely true.

**WORTHINGTON-DESIGNED** Timken-equipped trunnion bearing offers maximum flexibility.

**HIGH CAPACITY,** double V-belt-driven Worthington water pump, equipped with efficient disc-type clutch.

**HEAVY-DUTY TRANSMISSION** is designed and built by Worthington. Forward and reverse clutches and brake are completely enclosed and run in oil. Single lever operation.



The new Blue Brute Truck Mixers are the product of nearly a century of mixer building experience.

Weight distribution has been engineered so that the center of gravity is well forward of the rear axle—enabling you to carry the maximum legal payload.

Rigid field and factory tests assure you of trouble-free operation and easy maintenance—with all parts requiring maintenance readily accessible.

The modern Blue Brute is available in capacities of 3, 4½, and 5½ cubic yards, with respective agitator ratings of 4¼, 6⅛, and 7⅜ cubic yards.

Learn more about the new Blue Brute—the truck mixer that is the ideal combination of light weight, strength, and durability. Write your nearest Worthington Blue Brute distributor or Worthington Corporation, Construction Equipment Division, Plainfield, New Jersey.

# truck mixers . . .

# distribution—

## maximum legal payloads

**FAST CHARGING HOPPER** is equipped with the simplest, easiest to operate control available—no chains, worms or sprockets.

**AUTOMATICALLY WELDED,** overlapping drum joints for greater strength at drum seams.

**LIGHT-WEIGHT, STRONG,** die-formed distributing chute is shaped to permit unobstructed flow of concrete.

**CHILLED-FACE DRUM ROLLERS** are self-cleaning and thoroughly sealed against dirt. High-carbon, deep section drum tire is automatically welded to drum.

**FULLY EQUIPPED,** the 4½ cu yd closed end Blue Brute truck mixer weighs less than 6800 lbs. The open end mixer (same capacity) weighs less than 6200 lbs.

R.2.4

If It's A Construction Job, It's A *BLUE BRUTE* Job

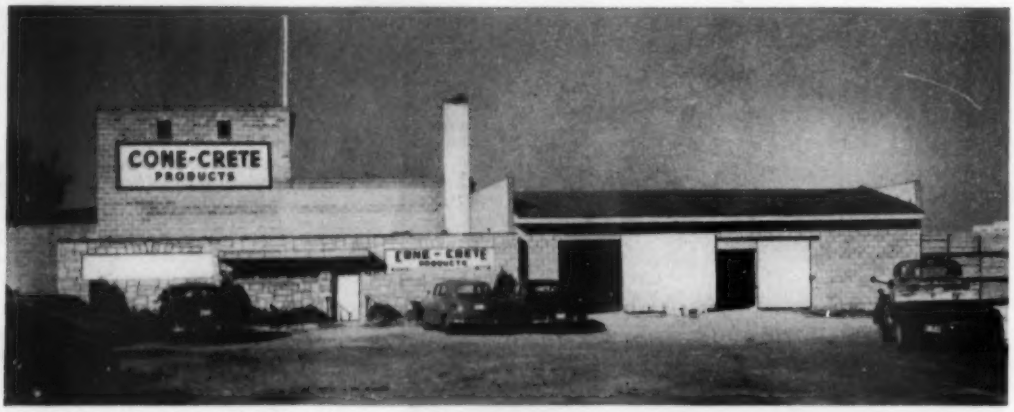
WORTHINGTON
Construction Equipment

SINCE DECEMBER, 1949...

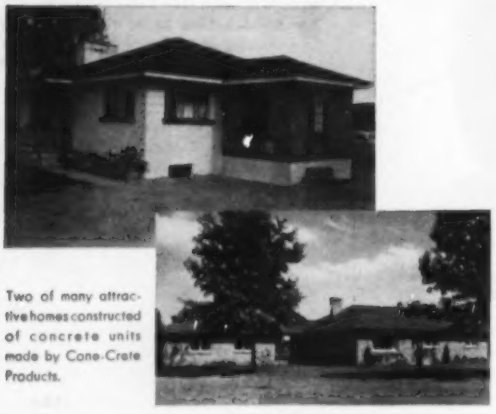
"greater production per barrel of cement...

"fewer culls...

"greater strength in shorter curing time"




Office and plant of Cone-Crete Products, Elkhart, Indiana



Two of many attractive homes constructed of concrete units made by Cone-Crete Products.

Better blocks with reduced cement content ... in a shorter time! These are the things that cut production costs, up profits. They are results obtained by Cone-Crete Products with LEHIGH EARLY STRENGTH AIR-ENTRAINING CEMENT. And the company adds: "These advantages more than offset the slight increased cost over regular types of cement."

It will pay you to make tests of LEHIGH EARLY STRENGTH AIR-ENTRAINING CEMENT, using your own aggregates, and compare the results with those you are now obtaining. Our Service Department will be glad to help you with your specific problems.

**LEHIGH PORTLAND CEMENT COMPANY**

ALLENTOWN, PA. • CHICAGO, ILL. • SPOKANE, WASH.

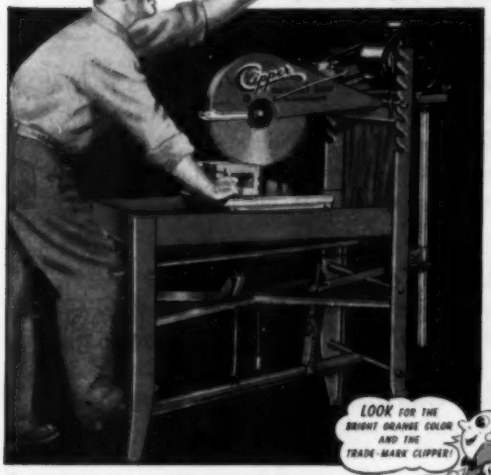
LEHIGH CEMENTS

LEHIGH PORTLAND CEMENT • LEHIGH EARLY STRENGTH CEMENT • LEHIGH AIR-ENTRAINING CEMENTS • LEHIGH MORTAR CEMENT

# LOOK JOE!...in SECONDS

A... Clipper MASONRY SAW ... WILL CUT THE HARDEST BRICK–STONE–TILE!*

*and at the lowest cost per cut



AND A... Clipper "SAILS RIGHT THRU" MASONRY SAW

## ...will PAY FOR ITSELF from the SAVINGS in TIME and MATERIAL

HERE'S WHY!...The DUSTLESS Clipper operates right beside your bricklayers because the Clipper is PORTABLE... easily moved from basement to roof. One Clipper Model HD with a Clipper Diamond Blade will do the cutting of 3 ordinary abrasive saws! This is possible ONLY with such Patented Clipper features as...the Pressure Equalizer Spring, the Famous Select-A-Notch, Water Application System, and Adjust-A-Cut which makes possible One-Spot Operation.

LOOK FOR THE BRIGHT ORANGE COLOR AND THE TRADE-MARK CLIPPER!

MR. CLIPPER

## Only with These Patented Clipper Features is Masonry Cutting Economical...

PRESSURE EQUALIZER

SELECT-A-NOTCH

WET OR DRY PUMP

## IT'S YOURS ON...FREE TRIAL!

ORDER TODAY... on FREE TRIAL. Discover for yourself how CLIPPER...will increase your profits by increasing your production at reduced costs. CLIPPER'S "On the Job" FREE TRIAL guarantees you satisfaction at no obligation!

**OUR ONLY BUSINESS FOR NEARLY 20 YEARS... MASONRY & CONCRETE SAWING!**

The unqualified Clipper guarantee of satisfaction is backed by world-wide experience, the ability to select the finest materials, and the "know-how" to put them together.

## TODAY!...Try the New—Faster Cutting—Economical CLIPPER SUPERIOR BLADES

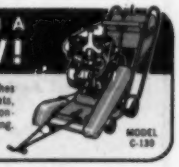
...guaranteed to "Consistently Provide the fastest cut...at the lowest cost...with the greatest ease!" Clipper alone can supply *all* specifications of Abrasive, Diamond and "CBR" (Break-Resistant) Blades to accurately meet your requirements. INVEST IN CLIPPER and YOU'LL GET RESULTS!

Clipper

SAW BEFORE BREAKING WITH A CLIPPER CONSAW!

Save up to 50% in labor and material. Saw repair patches—gas, water, sewer and air line trenches in floors, streets, walks, runways and highways. Save, too, by sawing contraction joints—eliminate costly hand forming and spalling.

5 MODELS, GAS OR ELECTRIC POWERED



MODEL C-130

MR. CLIPPER

SAME DAY SERVICE FROM YOUR NEAREST FACTORY BRANCH—

KANSAS CITY 8, MISSOURI

COAST TO COAST

- PHILADELPHIA
- ST. LOUIS
- CLEVELAND
- DETROIT
- AUSTIN, TEX.
- CHICAGO
- LOS ANGELES
- BOSTON
- HOUSTON
- MILWAUKEE
- ST. PAUL
- INDIANAPOLIS
- NEW YORK
- PITTSBURG
- SAN FRANCISCO
- CINCINNATI
- ATLANTA
- WASHINGTON, D.C.
- BIRMINGHAM
- CHARLOTTE, N.C.
- DALLAS
- KANSAS CITY

IN CANADA – P.O. BOX 476, WINDSOR, ONTARIO

MAIL COUPON NOW

SOLD ONLY DIRECT FROM FACTORY BRANCHES

**CLIPPER MANUFACTURING CO.**
2801 N. WARWICK • KANSAS CITY 8, MO.

*Send FREE Literature and Prices on:*

- ☐ CLIPPER MASONRY SAWS
  - ☐ DUSTLESS MODELS
  - ☐ DRY ONLY MODELS
- ☐ CLIPPER CONSAWS
- ☐ CLIPPER ABRASIVE BLADES
  - ☐ WET
  - ☐ DRY
- ☐ CLIPPER DIAMOND BLADES

(97)

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

# 5 IMPORTANT CONVENTIONS

## *Are Just Ahead*

THE winter convention season is just ahead for many of the important nonmetallic mineral industries and related industries. Important national meetings are scheduled for producers of agricultural limestone, crushed stone, sand and gravel, ready mixed concrete and concrete masonry units. In conjunction with the masonry meeting, the biennial exhibit of machinery and supplies will be held. At the other meetings there will be no exhibits, but manufacturers' representatives will attend in large numbers.

Complete programs of all conventions are available and the information on hand indicates that they are up to their usual high standards. Recognized authorities, most of them members of or directly connected with these industries, will discuss the latest and most important developments affecting these industries. Subjects covered will include production methods, merchandising, research, governmental developments, present conditions and future prospects, etc. Open forums will invite wide participation in the formal discussion of vital problems.

### *INDUSTRIES COVERED ARE:*

***AGRICULTURAL LIMESTONE*** ***SAND AND GRAVEL***

***READY MIXED CONCRETE*** ***CRUSHED STONE***

***CONCRETE MASONRY***

**HAVE YOU MADE YOUR HOTEL RESERVATIONS? IF NOT, DO SO *NOW!***

***Here are the Dates and Places —***

**Eighth Annual Convention**
**National Agricultural Limestone Institute, Inc.**
**January 18-21, 1953**
**Statler Hotel, Washington, D.C.**

**Thirty-Seventh Annual Convention**
**National Sand & Gravel Assn.**
**February 23-26**
**Hotel Fairmont, San Francisco**

**Thirty-Sixth Annual Convention**
**National Crushed Stone Assn.**
**February 2-4**
**Hotel New Yorker, New York**

**Thirty-Third Annual Convention**
**National Concrete Masonry Assn.**
**January 25-29**
**Hotel Hollenden, Cleveland, Ohio**

**Twenty-Third Annual Convention**
**National Ready Mixed Concrete Assn.**
**February 23-26**
**Hotel Fairmont, San Francisco**

# THIS IS OUR 4th ANNIVERSARY

Four Years Ago, January 1949, at the N.C.M.A. Convention at Cleveland We Unveiled the

## FIRST AND STILL THE ONLY

**Automatic Height and Density Control**

## NOW

**The Results of Four Years of Use of**

## ELECTRO-VISOR

By Progressive Block Makers With All Types of Aggregates, Continued Research & Improvement in Performance are Being Displayed at

# UNION SAND & SUPPLY CO.

**of**

## PAINESVILLE, OHIO

Electronic Control of the Besser Vibropac, resulting in Uniform Height, Uniform Density Block after Block and still the **ONLY AUTOMATIC FEED** Control being offered to the Block Industry.

We will have no Booth at the Convention, our equipment will be operating making Block at Union Sand & Supply Co. Bus transportation will be provided.

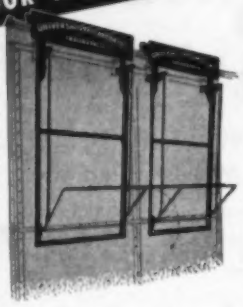
**M AND M ENGINEERING CORPORATION**

**1017 WEST 23rd STREET** **INDIANAPOLIS 23, IND.**

**IMPERIAL 5496**

# DON'T MISS THIS *Double Feature* AT CLEVELAND

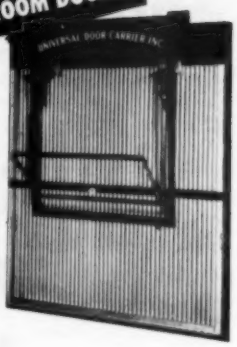
## 1 UNIVERSAL DOOR CARRIERS



World-famous since 1904, this efficient door handling device is ruggedly built to give years of trouble-free service with practically no maintenance. See it demonstrated and you'll quickly observe how it can improve your operation—by faster, easier door-handling, and by automatically insuring a good tight closure every time.

You are cordially invited to VISIT OUR BOOTH (NO'S. 25 & 26)
CLEVELAND AUDITORIUM
JANUARY 26-29

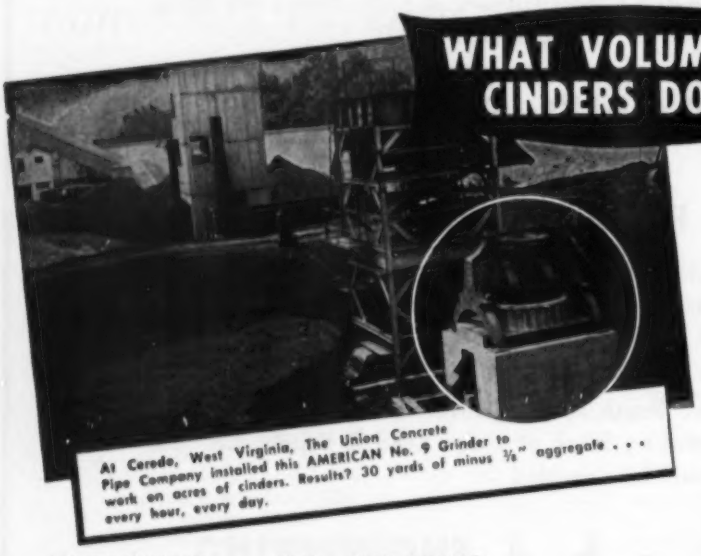
## 2 UNI-TEMP CURING ROOM DOORS



Fully insulated, all-metal construction. Let us show you how they can help you: 1. Reduce costs; 2. Increase operating efficiency; and 3. Improve the quality-uniformity of your product. The investment is moderate. In fact, many block manufacturers have told us they expected a much higher cost—up to four or five times as much!

SINCE 1904
UNIVERSAL DOOR CARRIER, INC
1117 CORNELL AVENUE
INDIANAPOLIS 2, IND.
MANUFACTURERS OF QUALITY DOORS AND CARRIERS

# WHAT VOLUME OF GROUND CINDERS DO YOU NEED?



At Laredo, West Virginia, The Union Concrete Pipe Company installed this AMERICAN No. 9 Grinder to work on acres of cinders. Results? 30 yards of minus ⅜" aggregate . . . every hour, every day.

## Select from 8 AMERICAN Grinders Hourly Output 4 Yards to 75 Yards!

Write your own ticket for your plant's cinder-grinding requirements . . . one of the 8 AMERICAN Grinders will give you the output needed . . . deliver minus ⅜" mesh aggregate without additional separation! Your AMERICAN Grinder will require minimum maintenance . . . will conserve power . . . will help produce low-cost, top-quality cinder block. Write . . . wire . . . phone . . . ask for an AMERICAN grinding expert to help you lick your problem.

**CAPACITIES . . . YDS. PER HOUR**

| | |
|---|---|
| No. 5 . . . . . 4 | No. 9 . . . . . 30 |
| No. 6 . . . . . 6 | No. 482 . . . . 35 |
| No. 7 . . . . . 12 | No. 418 . . . . 50 |
| No. 8 . . . . . 20 | No. 384 . . . . 75 |

*American* GRINDERS by
W. A. RIDDELL CORP.
BUCYRUS, OHIO

# Concrete Manufacturer Classified Section

431 S. DEARBORN ST., CHICAGO 5, ILL.

**Advertising Rate Per Issue: $10.00 a Column Inch. Lower Rates on a Contract Basis — Write for Rate Card.**

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**FOR SALE**

F.C. George two-block-at-a-time machine, complete with new mold box, spare parts and

2500 8" Modular aluminum pallets,
1000 12" Modular aluminum pallets,
1100 4" Modular aluminum pallets,

plus attachments and mold box for making 4" & 12" blocks together.

Recently rebuilt and guaranteed in perfect running condition.

Price $2000.00 cash for quick sale.

**FAIRVIEW BLOCK CO. INC.**
41 Violet Avenue
Poughkeepsie, N. Y.
Telephone: Poughkeepsie 1777

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**MAQUINARIA y MOLDES**
*para fabricación de bloques y tubos de concreto*

PIDA CATALOGO
Y PRESUPUESTOS
A: New & used.

**GEORGE W. HOFFMANN CO.**
P. O. Box 452, Sioux City, Iowa, U.S.A.

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**MINERAL COLORS**
for
**BRICK MORTAR**
**STUCCO-PLASTER-CONCRETE**
*"Fine Because of Their Fineness"*
*Ask for samples and recommendations.*
**BLUE RIDGE TALC CO., INC.**
**HENRY, VIRGINIA**

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**FOR SALE**

1—2 yard 1951 HiLo mixer .....$2600.00
1—3 yard 1951 HiLo mixer .....$2800.00
Clean—barely used.
1—2 yard 1948 Blaw Knox mixer—good condition .....$2000.00
Reason for selling—going to larger equipment.

**MODAHL AND SCOTT, INC.**
917 East Grove Street Bloomington, Illinois
Phone 5285

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**FOR SALE**

1—Korpac Block Machine with 8" mold box
1—Dunsmore semi automatic Block Machine Vibrator type
WANTED—6" open end steel pallets

**E. A. SPLETTSTOESSER**
**Waconia, Minnesota Telephone: 115-R**

---

**YOURS TO SERVE**

If you have not found the equipment you are looking for, the research dept. of The Concrete Manufacturer can and will gladly assist you. Tell us what it is . . . Write to

**Research Dept.**
**C/O The Concrete Manufacturer**
431 S. Dearborn St. Chicago 5, Illinois

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# STEARNS 15

**WITH:** • MAGNETIC OFFBEARER • PALLET RETURN
• EXTRA BRAKE • 8" and 12" MOLD BOXES

***LIBERAL TRADE-IN ALLOWANCE ON OLD EQUIPMENT***

| | |
|---|---|
| STEARNS #9 Joltcrete | $2500.00 |
| STEARNS #7 Joltcrete | 2000.00 |
| STEARNS 18 cu. ft. Concrete Mixer | 750.00 |
| STEARNS 28 cu. ft. Concrete Mixer | 1500.00 |
| STEARNS 18 cu. ft. Skip Loader | 750.00 |
| STEARNS 42 cu. ft. Skip Loader | 1500.00 |

***WRITE . . . WIRE . . . PHONE***

***Largest Stocks of Pallets in the world. Send tracing or sample for quotation.***

**GENERAL ENGINES CO.**
307 HUNTER ST., GLOUCESTER CITY, N. J.

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**SPACE HEATERS**

**War Surplus Bargain**

**New — Ready To Use!**

**40,000 BTU capacity**

—Burning gasoline, kerosene or diesel fuel.
—Electric blower—12 V. DC or 110 V. AC using small transformer which we furnish with each heater.

**Portable, Quick, Clean Heat**

Ideal for curing room, concrete plants, work under construction, emergency heat, or auxiliary heaters.

**$95.00 each**

**Clapp, Riley and Hall Co.**
14 No. Clinton St.,
Chicago 4, Illinois

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**IMMEDIATE DELIVERY**

**CRANES & HOES**
Lorain "TL25K" **Used** ¾ yd. Diesel Dragline
Lorain "TL25K" **Used** ¾ yd. Diesel Trench Hoes (2)
Lorain "TL25K" **Reconditioned** Trench Hoe Attachments (2)
Insley "K-12" **Used** ½ yd. Gas Dragline or Hoe
Link-Belt "LS-50" **Reconditioned** ½ yd. Gas Dragline
**BUCKET LOADERS**
Haiss "750" **Used** Crawler Bucket Loader
Barber-Greene "522" **Used** Rubber-tired Bucket Loader
**TRANSIT MIXERS**
Rex 2 yd. **Used** Hi-Discharge Mixer, w/Ford Truck
Rex 2 yd. **Used** Hi-Discharge Mixer, w/Chevrolet Truck @ $1500.00
Rex 3 yd. **Used** Hi-Discharge Moto-Mixers, un-mounted
Rex 3 yd. **Used** Hi-Discharge Mixer, w/Chevrolet Truck (6-Wheeler)
Jaeger 3 yd. **Used** Hi-Discharge Mixer, w/White WA26 Truck
Smith 3 yd. **Used** Hi-Discharge Mixer, w/White WA26 Truck
Note: All equipment in our yard.

**EIGHMY EQUIPMENT COMPANY**
Pierpont at West State St, Rockford, Illinois
Phone: 4-6706

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**FOR SALE**
**Transit Mixers**
1940—3½ yd. Rex on 1944 LJ Mack
1940—3½ yd. Rex on 1947 65M2 Federal
1941—4 yd. Rex on 1946 LJ Mack
1947—3 yd. HiRex on 1947 KR12 International

**THE WATERBURY READY MIXED CONCRETE COMPANY**
94 Benedict Street Waterbury, Conn.

---

**FOR SALE**

Two No. 9 Stearns Joltcrete—complete with electrical control. Power carriage and 4, 6, 8, 12, and 18 in. floor filler attachments. Also includes 20,000 pallets.

---

One Van-U-Matic air operated 2 block plain pallet machine with 1300 18"x18" wood pallets & 4, 6, 8, & 12 in. flu block attachments.

---

One Syntro-Pac 2 block plain pallet machine. Automatic with off-bearer & 4, 6, 8, & 12 in. attachments.

**W. K. BRYANT**
**Strasburg, Virginia**

---

**FOR SALE**

Stearns No. 8 Joltcrete block machine, complete with power carriage, motors & switches. 4", 6", 8", 12" and 8" Header relinable modular attachments. Modular press steel pallets, as follows: 4500-4", 2500-6", 2800-8" regular, 480-8" Cor/Sash, 1175-12" and 190-12" Cor/Sash. Also parts for making 8" & 12" halves and Single & Double 8" Bull Nose. This equipment is in extra good condition and the first $6,500.00 takes it all.

**H & O CONCRETE BLOCK CO.**
P.O. Box 73 Phone 45291
E. Durham Station Durham, N. C.

# CONCRETE MANUFACTURER CLASSIFIED SECTION

## FOR SALE

1 Stearns 42 cu. ft. mixer with Ni-Hard liner. V-belt drive.
1 Stearns Joltcrete Model 9 with a pallet feeder
2 turntables
1 each 4"—8"—12" relinable modular mold boxes
1 each 4"—8"—12" solid mold boxes
1 6" mold box
1 drive motor
1 pallet dunker
1 Lewis & Shepard electric truck and starter
1 Multiplex ventilated chimney block machine
100 ventilated chimney pallets
76 #294 racks
10,000 8" 40% modular steel pallets
500 8" corner sash steel pallets
4,500 4" modular steel pallets
3,000 12" 45% modular steel pallets
500 12" corner sash steel pallets
4,000 6" (full) 40% steel pallets

This equipment can be seen in operation.

**Cline-Thornton, Inc.**
17th at Glenwood Ave.
Philadelphia 32, Pa.

## FOR SALE

Concrete Irrigation Pipe Manufacturing Plant. Located central San Joaquin Valley near Fresno. Exceptionally modern in mechanized equipment from handling of materials to loading cured pipe. $20,000 net 1951, ($20,000 plus) net to September 30, 1952. Owner established business 1937, has highest rating by Dunn-Bradstreet. Underpriced at $76,500 plus inventory at cost. $6,000 a year manager will continue during transition period at reduced salary.

**Caruthers Concrete Pipe Company**
**P.O. Box 115 Caruthers, California**

**FOR SALE:** 1 Hyster—20 Fork Lift, 2000 lbs. Completely re-built, in excellent condition, plus spare tires and wheel. Inquire—Fairview Block Co. Inc., 41 Violet Ave., Poughkeepsie, N. Y.

## MIXER BARGAIN

SMITH Tilting Mixer, Model 422, 4 cu. yd. plus 10% overload. Powered by 75 HP, GE Induction Motor. Good Condition.

**COAST EQUIPMENT COMPANY**
444 Eighth Street Market 1-5740
San Francisco 1, California

UNBREAKABLE
**PALLET RINGS**
Write for full information
TEXAS FOUNDRIES
LUFKIN, TEXAS

## BARGAIN FOR QUICK SALE

PRACTICALLY NEW COLUMBIA MODEL 8 AUTOMATIC 2-BLOCK MACHINE plus complete equipment for immediate sale at drastic reduction, due necessity larger installation. Plant and following equipment complete with motors can be seen in operation: 72 steel racks, 1200 steel pallets, 4-8-12" and slab mold boxes, skip hoist and bucket, 30-ft. mixer, off-bear and spare parts. Will install and train production crew. Cash or terms.

**GOCORP SOUTH-WEST COMPANY**
302 Interurban Bldg. Dallas, Texas

## FOR SALE

3 Block Besser Vibrapac Machine with Oswalt Attachment.

Also loading skip and 50 ft. mixer.

Above may be inspected in operation.

**YORK BUILDING PRODUCTS COMPANY, INC.**
YORK, PA.
Phone 8-2818

## CEMENT COLORS

Write for free samples and prices of "LANSCO" CEMENT COLORS produced in 24 attractive shades. Packed in bulk and in 1 lb. and 5 lb. packages.

*manufactured by*
LANDERS-SEGAL COLOR CO.
71 Delevan St. Brooklyn 31, N. Y.

## $1000.00

Buys Model "7" Joltcrete including 4 inch, 6 inch, 8 inch, and 10 inch attachments.

**ROCKFORD CEMENT PRODUCTS**
315 Peoples Avenue
Rockford, Illinois

## NEW AEROIL HOT WATER HEATERS

For Ready Mix Plants
heats 1600 gals. per hr. from 50 to 100 degrees
F.O.B. So. Hackensack, N.J. .....$347.50
F.O.B. Denver, Colorado.....$390.00
50¢ with order — Bal. sight draft

**AL WILLIS SALES CO.**
1620 Syracuse St. Denver, Colorado

LOWER COST
**PACKER-HEAD WINGS**
Proved to last as long or longer — yet cost considerably less. Write for prices.
TEXAS FOUNDRIES
LUFKIN, TEXAS

## FOR SALE

COMPLETE BLOCK PLANT
Going Business. R.R. Siding. Fleming F. M. 100 Machine and Mixer. ¾ Ton and 2 Ton Trucks. Tile Machine & ½ Sack Mixer. 40 Horse Kewanee Boiler. No Competition in vicinity.

**H. D. JONES MARSHALL, MO.**

## FOR SALE

**NEW—Rex. Pumpcrete Machine, Model CZ-525, with Continental Gasoline Engine, on four pneumatic tires, equipped for Model 40 Pipeline with 630 Lin. Ft. of pipe and miscellaneous fittings and tools.**

**McKENZIE CONSTRUCTION COMPANY**
435 East Mitchell Street San Antonio, Texas

## ½ PRICE

1—Kirkman—100 Block Machine
2—Kirkman—8" Mold Boxes
1—Kirkman—4" Mold Box
Pallets—Attachments—Spare Parts
2—Kirkman Material Hoppers
1—6", 2-Block Vibrating Machine with pressed steel cored pallets and attachments. Can be seen in use.

**BLACKSBURG BLOCK AND SUPPLY CORP.**
Blacksburg, Virginia

## FOR SALE

Besser 25 ft. Mixer. Newly rebuilt with all new parts, with or without 25 HP motor; also Stearns 28 ft. vertical skip hoist with all controls, motor, etc., good condition—discharges 11½ ft. above floor. Will sell both together.

**SPEIGNER CONCRETE BLOCK CO.**
P. O. Box 1066 Dothan, Alabama

FOR SALE: 1 Besser K 3 super tamper block machine. Capacity 390 8" blocks per hr. Completely rebuilt last winter and used every day until replaced in Sept. with new Besser Vibrapac. Also have 68 block racks of 42 block capacity, 3200 pallets, 1 offbearing hoist, 1 hand lift truck. Block machine built in 1940. Complete price $2500.00.

**FERGUSON BLOCK COMPANY**
Phone 46 F 22 Davison, Michigan

## FOR SALE

Stearns 28 cu. ft. Mixer—20 HP. Motor. New Pinion & Gear, Heavy Duty Roller Brgs on shafting, Hard faced Bar Liners, 1 New Ni-hard Spare Blade. Excellent condition, replaced with 50 cu. ft. Mixer.

**IOWA-ILLINOIS CONCRETE PRODUCTS CORPORATION**
Bettendorf, Iowa

**Advertise your wants and surplus equipment in**

## CONCRETE MANUFACTURER CLASSIFIED SECTION

### WANTED

Bulk Cement Bin 400 to 500 barrel storage unloading Screw —Bucket Elevator—2 cubic yard Weigh Batcher. Advise full particulars including location and price.

Contact—W. H. Day

**JACKSON READY-MIX CONCRETE**
**P.O. Box 1023 Jackson, Mississippi**
**Telephone No. 3-1677**

**FOREMAN WANTED**

Established, eastern N.Y. concrete block manufacturer has opportunity for plant foreman.

Working knowledge of automatic block machine, capable of maintaining top level operating efficiency and must be mechanically inclined.

In reply furnish data as to age and experience.

**Box No. BK-26 • c/o Concrete Manufacturer**
**431 South Dearborn Street**
**Chicago 5, Illinois**

### HELP WANTED

**Concrete Engineer or Technician**

Long established manufacturer of technical treatments for concrete has salary position for man with practical experience in concrete design and ready-mix concrete plant operation. Excellent opportunity for advancement. Job requires travel in restricted area. Write full details about education, experience, salary desired, snapshot, etc. Reply strictly confidential.

**BOX NO. BK-20**

**c/o THE CONCRETE MANUFACTURER**
**431 S. Dearborn St. Chicago 5, Ill.**

**USED MACHINERY WANTED**

Kent Lintelator Machine. Advise model, price and age of machine.

**W. N. RUSSELL & COMPANY**
**34 Albertson Avenue**
**Westmont 7, New Jersey**

Wanted by well known manufacturer—agents to handle a product now well established in concrete block manufacturing plants.

**BOX NO. BK-25**
c/o The Concrete Manufacturer
431 S. Dearborn St. Chicago 5, Ill.

### HELP WANTED

Territory representatives. Excellent opportunity for right organization or man to sell full line of concrete products machinery. Must be willing to travel. Good commissions. Leads furnished.

BOX NO. BK-21, c/o
THE CONCRETE MANUFACTURER
431 S. Dearborn St. Chicago 5, Ill.

### STOP *that* WATER

**With FORMULA NO. 640**

A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—holds 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs: Applies quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free sample.
**HAYNES PRODUCTS CO., OMAHA 2, NEBR.**

**MANAGER**

for Readymix, Gravel, and Building Material Operation. Must be able to take full charge. Must have good mechanical knowledge and be sales minded. Western location. Excellent future for right man.

**BOX NO. BK-27**
**c/o Concrete Manufacturer**
**431 S. Dearborn St. Chicago 5, Ill.**

**MACHINERY WANTED**

1—Miles face down Block Machine
1—12 to 24 cu. ft. Skip Hoist
1—Tracto Lift #3000 capacity

**CHERRYVILLE**
**CONCRETE PRODUCTS CO.**
North Pink Street Cherryville, N.C.

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*Research Department*

**431 So. Dearborn St., Chicago, Ill.**

*Please send me catalogs and Prices concerning the following items checked below:*

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- ☐ Agitators, Slurry
- ☐ Aggregate-Bituminizing Plants
- ☐ Air Cleaner
- ☐ Air Compressors
- ☐ Asphalt Mixing Plants
- ☐ Asphalt Mixers
- ☐ Bag Filling and Weighing Machinery
- ☐ Bags, Cloth
- ☐ Bags, Paper
- ☐ Balls, Steel
- ☐ Barges, Steel
- ☐ Batching Equipment
- ☐ Belt Dressing
- ☐ Belt Fasteners
- ☐ Belting, Conveyor and Elevator
- ☐ Belting, Transmission
- ☐ Belt Tighteners
- ☐ Bin, Gates
- ☐ Bins
- ☐ Blasting Powder
- ☐ Blocks, Friction
- ☐ Bodies, Motor Truck
- ☐ Buckets, Clamshell
- ☐ Buckets, Conveyor and Elevator
- ☐ Buckets, Dragline
- ☐ Buckets, Orange Peel
- ☐ Cableways, Slackline
- ☐ Calcining Machinery
- ☐ Caps, Blasting
- ☐ Car Dumpers
- ☐ Car Pullers and Movers
- ☐ Carriers, Belt
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- ☐ Cars, Kiln
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- ☐ Cement Colors
- ☐ Cement Plants, Bulk
- ☐ Chains, Conveyor and Elevator and Drags
- ☐ Chains, Power Shovels, Crane
- ☐ Chains, Transmission
- ☐ Classifiers
- ☐ Clutches
- ☐ Clutches, Magnetic
- ☐ Concrete Block Machines
- ☐ Concrete Brick Machines
- ☐ Concrete Joint Machines
- ☐ Concrete Stave Machines
- ☐ Concrete Plants, Ready Mix
- ☐ Cones, Washing
- ☐ Connectors, Wire Rope
- ☐ Conveyors, Apron
- ☐ Conveyors, Belt
- ☐ Conveyors, Concrete
- ☐ Conveyors, Screw
- ☐ Conveyors, Skip
- ☐ Coolers
- ☐ Coupling, Flexible
- ☐ Cranes, Locomotive
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- ☐ Crushers, Hammer
- ☐ Crushers, Jaw
- ☐ Crushers, Ring
- ☐ Crushers, Roll
- ☐ Cutter Heads, Dredging
- ☐ Derricks
- ☐ Draglines, Cableway
- ☐ Draglines, Revolving Boom
- ☐ Dredges, Hydraulic
- ☐ Dredges, Ladder
- ☐ Drills, Air
- ☐ Drills, Blast Hole
- ☐ Drills, Diamond
- ☐ Drills, Hand Hammer
- ☐ Drills, Sharpening Machinery
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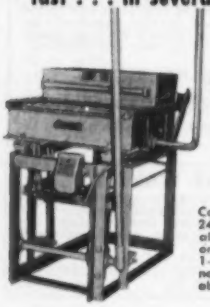
# make $200 profit per day with new RAINBOW ROCK MACHINE

**new building materials machine makes modern slump brick fast . . . in several sizes, colors . . .**



**cash in with this new machine . . . fully guaranteed only $750** fob factory compl. With Motor

Capacity of 1500 beautiful concrete slump bricks daily, 24" long, 3½" wide . . . 1½", 2½" or 3½" thick. Steel all-welded high speed machine operates easily, indoors or out, with wood pallets of 2x4 lumber. Complete with 1-HP elec. motor, or powered by gasoline engine. Needs no special skill, simple operating instructions and valuable mixing formulae included.

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Act Now For This Sensational Buy! Big Profits!
Limited Number Available For Immediate Shipment!

**no cost for individuality! labor cost cut 1/3!**

The demand for exciting new Rainbow Rock is terrific. It's modern, practical, economical. Its many fade-proof pastel colors create desired individuality without extra expense. Sized larger than ordinary brick and easier to lay up, attractive Rainbow Rock cuts labor costs by one-third. And so many uses! Interior and outer walls, chimneys, fireplaces, steps, driveways, garden walls, walks, breezeways and garages. You can make it in several distinctively textured faces, perfect for latest building trends.

Fireplace of sensational new Rainbow Rock, one of the many luxurious effects with this versatile new building brick.

**GENERAL ENGINES CO.** Dept. PQ-13, 307 Hunter St., Gloucester, N. J.

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## "BRANFORD" PNEUMATIC VIBRATORS

You can produce

**CONCRETE PRODUCTS**

of great strength,

density and smoothness with

**"BRANFORD" AIR VIBRATORS**

Shown here is one of several types of "BRANFORD" portable Concrete Form Vibrators, available in a wide range of sizes. Other types for permanent vibrator installations can be supplied. One of the valuable features of "BRANFORD" Vibrating Equipment for concrete work is its VARIABLE SPEED. Low air consumption, high foot-pound impact and instant starting are other desirable qualities.

We will gladly study your vibrator requirements and recommend proper equipment. *Write or call us.*

**New Haven VIBRATOR COMPANY**
163 CHESTNUT STREET, NEW HAVEN, CONN.

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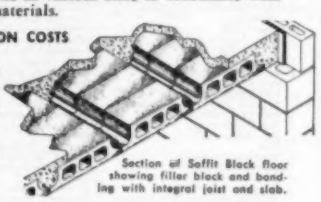
## "I Find BOTH Profitable"

VIBRAPAC Block and SOFFIT Floor and Roof Filler Block

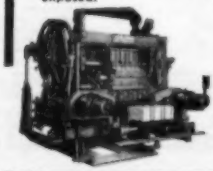
Vibrapac block plants are now adding to their profits by manufacturing Soffit Filler Block for floors and roofs. These units assure permanent, fire-safe construction, at low cost. Soffit Block provide maximum acoustical and insulation values with natural base for radiant heat installations. Made in various sizes to coordinate with other modular materials.

**CUTS CONSTRUCTION COSTS**

Temporary adjustable steel centers support Filler Block while slab and joist are curing. Conventional shoring is eliminated. The smooth, flush surface can be plastered, painted or left exposed.



Section of Soffit Block floor showing filler block and bonding with integral joist and slab.



**BESSER VIBRAPAC**

Vibrapac Block for walls, floors and roofs, in all styles and sizes, are made on a Besser Vibrapac, using one set of Plain Pallets. Fully automatic. No machine operator required. Write for descriptive literature.

**BESSER MANUFACTURING CO.**
ALPENA, MICHIGAN, U. S. A.
*Complete Equipment for Concrete Products Plants*

A 7015-¼

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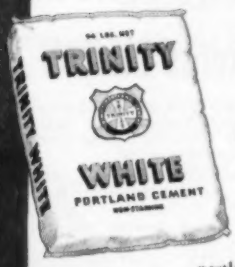



**PORTLAND CEMENT**

*A whiter white cement that gives greater beauty wherever used. It is a true portland cement. General Portland Cement Co., 111 W. Monroe St., Chicago; Republic Bank Bldg., Dallas; 816 W. 5th St., Los Angeles; 305 Morgan St., Tampa; Volunteer Bldg., Chattanooga.*

as white as snow

. . . for white or colored stucco . . .

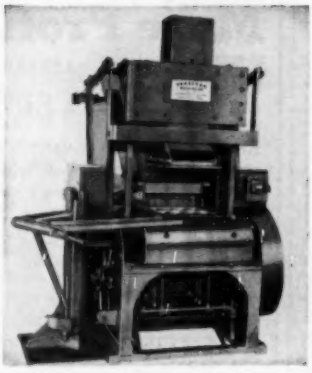
cast stone . . . terrazzo . . . cement paint . . .

. . . concrete architectural units . . .

and for many light reflective uses

# "AUTOMATIC 400" PRASCHAK MIXERS

- **PRESS HEAD** beautiful pressed top Blocks
- Power Packing plus Intense Dual Vibration
- **AUTOMATIC CYCLE — Capacity up to 400 blocks/hr.**
- Designed for small, med. and larger production plants
- **LOW PRICED** 1953 Model still $3995.00 complete.



*"Compare the Machine, Not the Price"*

Write for full information today

*We Also Manufacture:*
Conveyors, Cup Elevators, Crushers, Lift Trucks, Rotary Screens, Power & Hand Silo Stave Machines.

8 cu. ft. **$495.00**
16 cu. ft. **$660.00**
21 cu. ft. **$740.00**
30 cu. ft. **$960.00**

*"The Mixer that can take it"*

- All Ball Bearing Equipped
- Cast "Wearhard" Spiral Blades
- Replaceable Sectional Liners
- All Welded Drum Construction
- Drive Available on Either Side

**COMING SOON!**
*Soon a 50 Cubic Foot Mixer will be added to the PRASCHAK line of quality equipment. "Built to take it." Write for Details Today!*

**Equipment Bulletins**
Periodically, we send out equipment bulletins on our newest developments. If your firm is not already on our mailing list, send us your firm name & address today!

*Genuine Original Equipment Parts on hand for Prompt Shipment*

**PRASCHAK MACHINE COMPANY**
MARSHFIELD — WISCONSIN

*We invite you to come to our plant for an equipment demonstration*

. . . in Portland Cement Association advertisements month after month. These ads, many in rich, natural color, appear in leading national magazines that are bought and read by millions of house-conscious readers. They:

1 Tell of the beauty, economy and structural advantages of concrete masonry.

2 Create a real desire and preference for a concrete masonry house.

3 Send local prospects *to you* for more information and assistance.

That's where you take over. When a PCA ad appears mention it by page and magazine in your own newspaper, television, radio or direct mail advertising. Explain that your plant is headquarters for concrete masonry construction. Invite prospects to call for information and help in planning their houses.

When a prospect calls show him photos or take him to see attractive concrete masonry houses. Show him plans or tell him where to get them. Give him names of architects, builders and lending agencies experienced in designing, building and financing concrete masonry houses.

You'll find that tying-in with PCA ads and following through with service of this kind helps you get more business.

**PORTLAND CEMENT ASSOCIATION**
33 West Grand Avenue, Chicago 10, Illinois
A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

# *Why* PROTEINS IN LIGHTWEIGHT CONCRETE

## Mean More Profits For YOU . . .

**THE NETWORK OF PROTEIN MOLECULES in CEMTEIN CONCRETE** locks millions of tiny air cells in every square inch of the mix . . . gives you positive control of air content and thus positive control of weight.

**LOWERS COSTS.** Because CEMTEIN assures positive control of air content, less steel is required for support and there's no necessity to stock pile specialty (lightweight) aggregates. Then too, the same ingredients make one-fourth more concrete when mixed with CEMTEIN.

**IMPROVED WORKABILITY.** CEMTEIN makes it easier to place concrete, reduces K-factor of the hardened concrete, lessens water absorption and increases waterproof qualities.

**A STABLE MIX** is assured with CEMTEIN since air bubbles cannot run together or escape. CEMTEIN mix cannot "fall" or lose its lighter characteristics unless the amount of ingredients is changed. CEMTEIN concrete will withstand more than 500 pounds pressure per square inch.

***For complete specifications and product information***

LIGHTWEIGHT CONCRETE **CEMTEIN** PROTEIN ADDITIVE

Write
Department PQ-1-53
VAN HOVEN COMPANY
INCORPORATED
St. Paul 1
Minnesota

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WITH TRUSSED *Design*

**the Backbone of Steel for Every Masonry Wall!**

ANNOUNCES

## NEW *Flush-Weld* CONSTRUCTION

*"FOR TIGHTER Mortar Joints"*

Enduring, crack-free beauty is built in every wall where Dur-O-waL is used as a backbone of steel. Patented, custom-designed Dur-O-waL is now available with both lap and butt weld to provide vertical and horizontal reinforcing for block, brick and tile and as a tie unit for face brick and backup block.

*Write Plant Nearest You*
DUR-O-WAL PRODUCTS, INC.
P. O. Box 628 Syracuse 1, New York

DUR-O-WAL DIV., DEPT. 655
Cedar Rapids Block Company
Cedar Rapids, Iowa

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*It's* FLEMING ... *for High Quality—Low Cost*

# FMC-400

**Completely Automatic PLAIN PALLET Concrete Block Machine**

***Combines PRESSURE with HIGH-SPEED VIBRATION***

Only One Man is Needed
PLAIN PALLETS fed from either side
400 Block per hr. Producer
FMC 400
SEE THE FMC-400 AT THE NATIONAL CONCRETE MASONRY ASSN. CONVENTION
Complete Literature Supplied on Request

## FLEMING MANUFACTURING CO.

100 FLEMING AVE. CUBA, MO.

Phone 400

COMPLETE CONCRETE BLOCK PLANT EQUIPMENT

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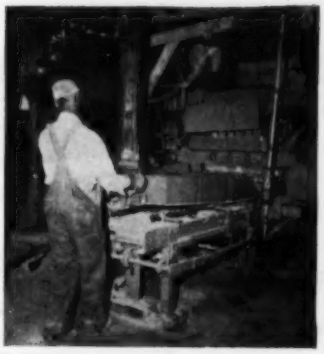
# 2 *New* FEATURES *by*

# OSWALT

**for smoother Vibrapac performance**

**New** SHOCK-FREE BLOCK EJECTOR AND FRONT PALLET FEEDER assures smooth gentle motion in block delivery from mold and eliminates green cracking. Culls reduced to minimum.
Pallets automatically fed back through magazine to mold box from front end of machine, which saves time and simplifies handling.

**New** SIMPLIFIED DEVICE FOR HEIGHT AND DENSITY CONTROL! Correct, uniform height of blocks is assured automatically by control of the vibrating motors, while the adjustment of a special timer maintains constant density. Signal light system enables operator to govern feed so as to compensate for variations in mix.



Showing two pallets with blocks being removed with off-bearer.

Entire mechanism is so compact that space under rear of machine is clear of chains, shafts and gears, making clean-up easy and safe for workmen.

All these added features of Oswalt Service are designed to handle block production up to speeds of 1080 units or more per hour . . . without sacrifice of quality or the cracking of green blocks.

***Write for new Oswalt Booklet***

Many satisfied customers operating scores of machines.

Write for name of Oswalt-Serviced plant nearest you.

## OSWALT ENGINEERING SERVICE CORP.

1335 Circle Ave., Forest Park, Illinois

Phones: EStebrook 8-3666, FOrest 6-3898

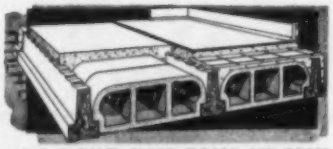
F & A

Reg. U. S. Pat. Off.

## ATTENTION!

### Mr. Block Producer

**For Greater Volume and Bigger Profits Pave Your Way With F & A**



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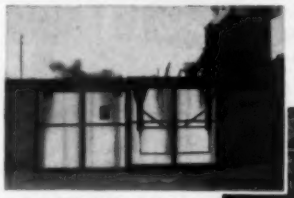

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The sliding carrier-type door needs no aisle space. Carrier equipment requires 15 inches minimum clearance above top of doors.

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The hinge-type door is pulled up by a chain hoist. It can be used when there's insufficient room at sides of door opening to permit using the carrier-type door, and where aisle space is adequate.

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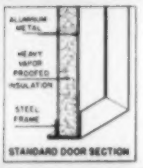


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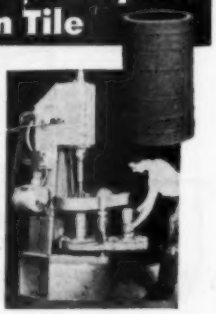

More millions of drain tile are needed to supply ever growing demand. The market is broad and profits are big.

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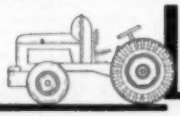

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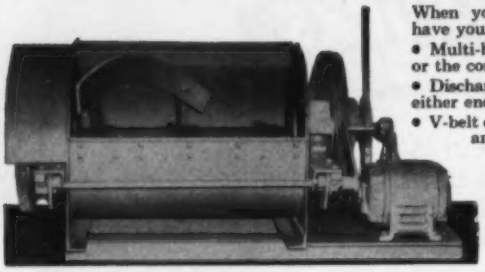

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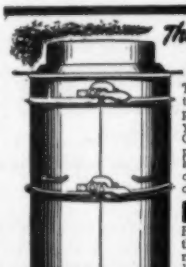

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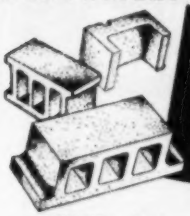

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**MARVEL** DRAIN TILE

*The better tile — Better looking Better selling*

Low cost, ruggedness, and dependability make the

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a must in plants both large and small. The MARVEL JR. is famous for the smooth, symmetrical, full flat-ended tile it produces—a big selling feature and the reason why your customer prefers them over tile made on more expensive competitive machines. Write for detailed bulletin at once.

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DRAWER 60A — HICKORY, N. C.

**truck-man** runs

**18,000 HOURS**

without overhauling

**Here's what Knox Concrete Products, Inc., Knoxville, wrote us when they placed an order for replacement parts recently:**

". . . We are not only well pleased but we do not believe there is a piece of equipment on the market which would serve our requirements any better . . . Our normal load would probably run in the neighborhood of 4000 lbs. . . . We now have four Truck-Men . . . that run possibly *20 hours every day continuously* . . . The cost of operating a Truck-Man is certainly extremely low, as it uses very little gas and oil . . . We have had very little maintenance on this equipment."

". . . After six years at approximately 10 hours per day steady running I find it necessary to rebuild the majority of gears, sprockets and other movable parts on one Truck-Man and prepare to do so on another . . ." says Cement Block Industries, Coral Gables, Florida.

What more need we say? That last statement works out to approximately 18,000 hours of trouble-free operation. What would the record show if they had been using the *new* Truck-Man with its husky 5.8 h.p. Wisconsin engine? It's Truck-Man's low weight to payload ratio combined with rugged power that makes possible its unequalled efficiency in block-plant operation. You burn only a gallon of gas on most 8-hour shifts yet spot the heaviest racks in jig-time. Rubber cushioned ride, hydraulic lift, smooth start and stop mean no costly checking of blocks. Lower costs from purchase through maintenance and big savings in manpower—everyday—for years—make Truck-Man your *first* necessity for block handling. Available in skid, pallet, platform and *New* tractor models.

*See the two new Truck-man trucks designed especially for concrete products plants in Booth 40 and 41 at Concrete Industries Exposition, Cleveland, January 25-29.*

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Jan. 26-29, 1953

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1403 Marshall St. N.E. Minneapolis 13, Minn.


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# TRANSO'S PERFECTLY MATCHED MIXING-MOVING TEAM

DE LUXE **TRANSOMIXER**
OR
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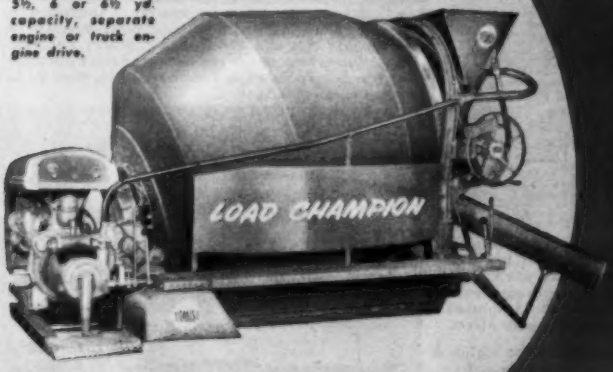
Powerful, faster mixing and smooth discharging are hallmarks of both Transo's mixers — the "Deluxe" Transomixer and the economical LOAD CHAMPION. Both are engineered shorter and lighter than other Mixer-Agitators of equal capacity, allowing a wide choice of light-weight truck chassis. With separate engine or truck engine drive, hundreds of pounds of costly ring gears, sprockets, or bevel gears are eliminated . . . Transo's patented direct drive utilizing a planetary type reduction unit in the Load Champion and universal joint spider in the Transomixer to provide direct coupling of transmission and mixer drum. Better weight distribution, maneuverability, and handling ease result.

PLUS

THE MODEL TL-50 ½ YD.
**Load Master**

Transo's fast-traveling, short-turning LOAD MASTER practically scrapes itself at a flick of the finger tips . . . easily maneuvers, loads or dumps smoothly and accurately . . . manipulates and stays "on a dime." Complete elimination of the conventional engine clutch and converting these 95% of the load master's planetary type reverse transmission, built integral with the front drive axle, initiates a two-speed shuttle drive easily controllable in 20 advanced Powered loader working action, 100% operator visibility, and full 25° dumping clearance—20° higher than any other ½ yd. loader—truly put profits back in both loading operations.

*Available in 3, 4, 5, 5½, 6 or 6½ yd. capacity, separate engine or truck engine drive.*




Transo's compact Planetary Type Reverse Transmissions make the difference in this perfectly matched Mixing-Moving Team. *Power without deadweight*—key to the dependable economy of each Transo champion—assures around-the-clock stamina and efficiency with full loads. The cushioning effect of spring-loaded clutches running in oil greatly adds to the mobility, handling ease, faster loading, and speedy, shock-free discharging which make the Transomixer, the Load Champion, and the Load Master leaders in their fields.

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**See the TRANSO mixers and loader at the Concrete Industries Exposition, Jan. 26-29, Booths 56-57-82-83**

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## *Production Surpasses All Expectations!*

## ...Highest Quality Masonry Units in Company History

**STEARNS 50—A Great, One-Man, 2-Blocks-per-Cycle Machine for the Larger Plant.**

**Simple, Rugged Mechanism • Heavy Frame Members for High Stability • Fully Automatic • One-Man Operation • Unidirectional Vibration under Pressure • Plain Pallets • Power Pallet Handling • Economical • Low Maintenance • Sturdy • Dependable • Beautiful, Compact Blocks.**

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INCORPORATED
CONCRETE BLOCK MANUFACTURING EQUIPMENT
CONSTRUCTION SPECIALTIES
ENGINEERING SALES AND SERVICE
TELEPHONE 2995 P.O. BOX 791 WAYCROSS, GEORGIA

November 17, 1952

Stearns Manufacturing Co.
Adrian, Michigan

Gentlemen:

We have always strived to produce a high quality concrete masonry unit. However, we are now producing the highest quality masonry units since the Company was organized, which was over six years ago.

Our Stearns 50 was installed in February, 1952. It is equipped with a Stearns 42 cu. ft. mixer, double pallet off-bearer, and automatic pallet return, which eliminates the services of one man normally used. Production has surpassed our expectations, which enables us to serve a territory within a sixty mile radius of Waycross, Georgia, and we have had no difficulty in supplying the needs of this area.

The masonry units produced are of uniform texture, with true edges and corners. The unidirectional vibration under pressure enables us to produce a unit that more than meets ASTM and Federal specifications for compaction and absorption.

We take this opportunity to commend the entire Stearns staff for their prompt and courteous service given us, and recommend Stearns equipment to anyone who wishes to produce quality concrete masonry.

Yours very truly,
SOUTHEASTERN BRICK CO., INC.
Roy C. Barnes
Roy C. Barnes
Sec.-Treas.

RCB:mlc

Here is the great Stearns 50 Concrete Block Manufacturing Machine ▲ with which Southeastern Brick Company, Waycross, Georgia, has been making such an outstanding record. Installed last February, it has cut by 50 % the time and manpower formerly found necessary to supply the area's demands. Note Stearns Double Pallet Offbearer and Automatic Pallet Return. The company also operates a Stearns 42-cu. ft. Mixer.

Here, in the yard of Southeastern Brick, are examples of the highest ▶ quality concrete blocks ever produced by the company—more than meeting ASTM and Federal Specifications for high compaction and low moisture absorption.

Roy C. Barnes, left, secretary-treasurer of Southeastern Brick Company, and J. S. Strickland, superintendent of the Georgia concern. Demand for quality concrete masonry units has continually increased since the company was incorporated in February, 1946, with R. L. ◆ Pittman as president.

**Be sure to see Stearns at the 8th Biennial Concrete Industries Exposition, Jan. 26-29 in the Cleveland Public Auditorium.**

***OWNERSHIP — THE KEY TO SUCCESS!***

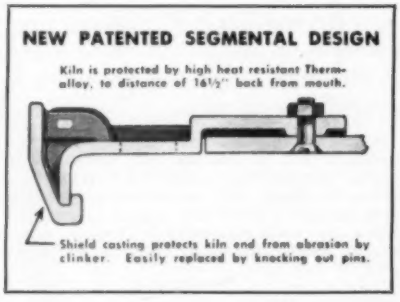
# STEARNS

**MANUFACTURING COMPANY • INC**

ADRIAN • MICHIGAN

STEARNS 15 | STEARNS 50 | ZIPPERS | JOLTCRETES | MIXERS | SKIP LOADERS | TURNTABLES | SINTERLITE

# THERMALLOY* KILN END "RETIRED" AFTER 15 YEARS' SERVICE


NEW PATENTED SEGMENTAL DESIGN
Kiln is protected by high heat resistant Thermalloy, to distance of 16½" back from mouth.
Shield casting protects kiln end from abrasion by clinker. Easily replaced by knocking out pins.

Back in 1935, the Ideal Cement Company of Okay, Arkansas, purchased a spare set of Thermalloy Kiln Ends. Yet they were actually placed in service only during the past year.

*Reason: life of the original Thermalloy Kiln Ends was far beyond expectations—15 years to be exact.*

Such service life is unusual, of course. But it does prove that Thermalloy's excellent heat-resisting properties give exceptional service life. In addition, the new segmental design illustrated at the left provides extra advantages.

One of our engineers will be glad to show you how Thermalloy's properties plus our improved segmental design lengthen kiln-end life. Write Electro-Alloys Division, 2038 Taylor Street, Elyria, Ohio.

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AMERICAN Brake Shoe COMPANY

ELECTRO-ALLOYS DIVISION
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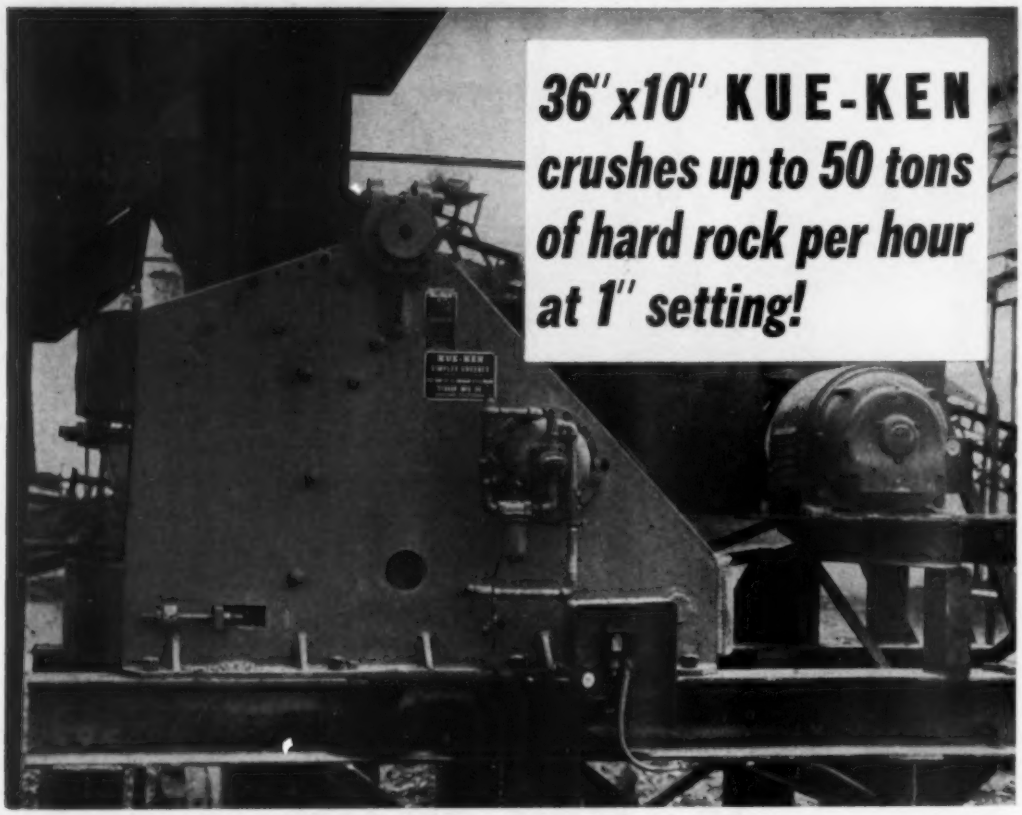


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*Grinding Balls*

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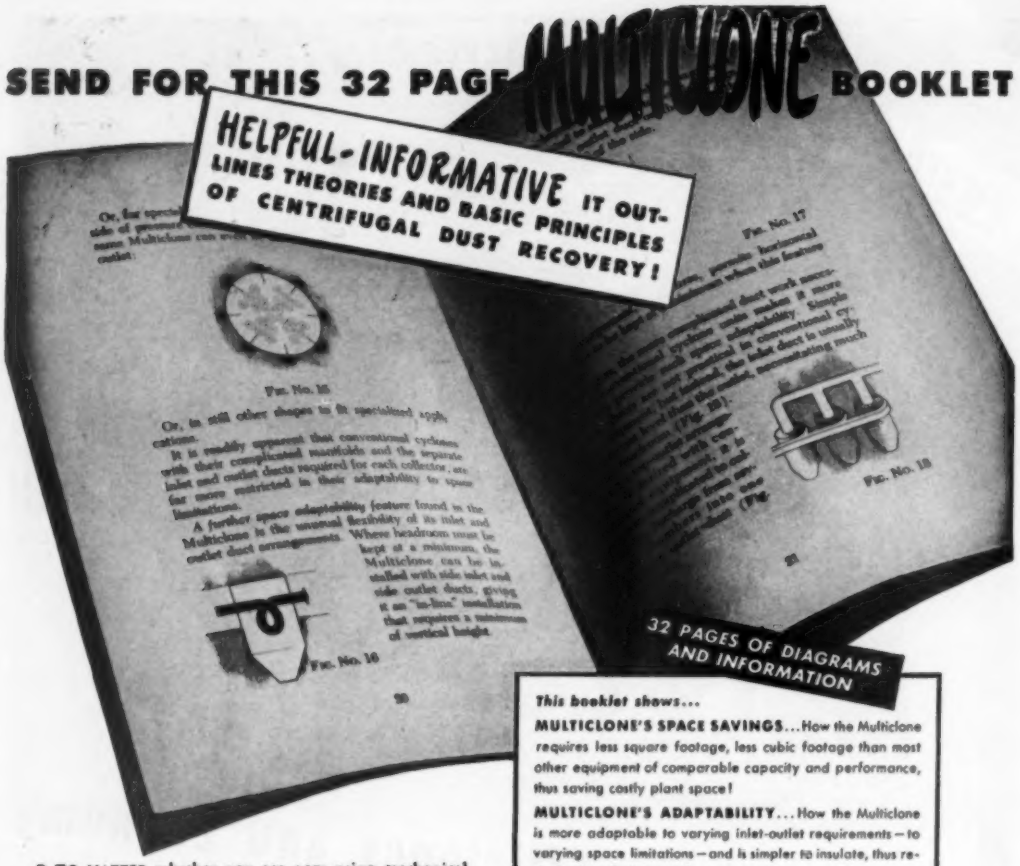
HELPFUL-INFORMATIVE IT OUTLINES THEORIES AND BASIC PRINCIPLES OF CENTRIFUGAL DUST RECOVERY!
Fig. No. 16
Fig. No. 17
Fig. No. 18
32 PAGES OF DIAGRAMS AND INFORMATION

NO MATTER whether you are now using mechanical dust recovery equipment or are planning the installation of such equipment at some future date, here is a booklet that is full of helpful and valuable information on centrifugal dust recovery. It not only explains the basic methods and principles involved, but also shows the important differences between small and large diameter separating tubes, shows how to simplify your duct work and reduce installation costs, and outlines many other important factors to be considered in selecting mechanical dust recovery equipment.

In addition, this informative booklet illustrates and explains how MULTICLONE'S unique *vane* design is fundamentally different...how it makes possible greater compactness, simpler installation, high recovery of the small particles as well as the medium and coarser ones, and many other facts on MULTICLONE advanced design.

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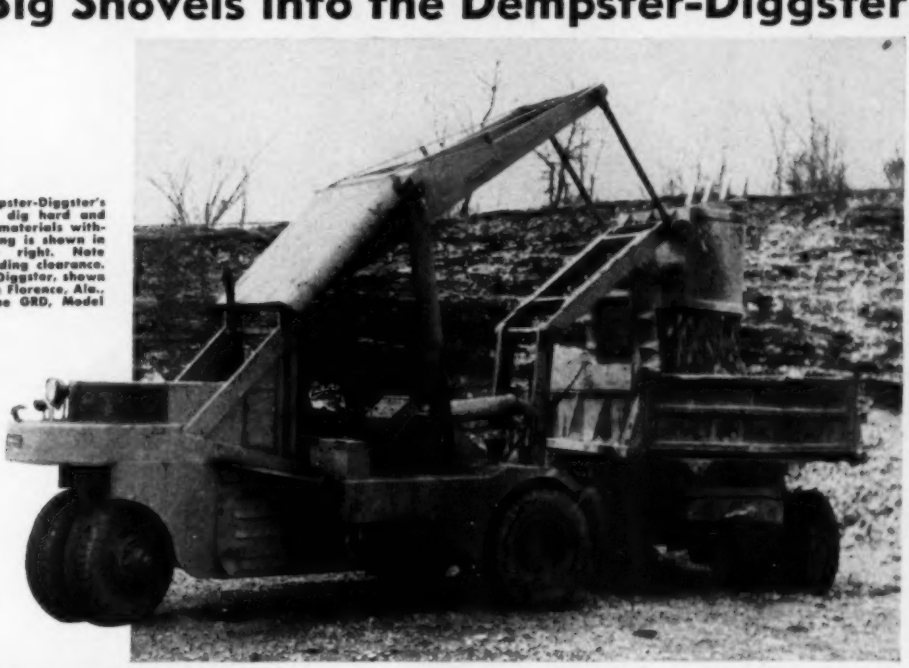

The Dempster-Diggster's ability to dig hard and stratified materials without shooting is shown in photo at right. Note ample loading clearance. Dempster-Diggster, shown at work in Florence, Ala., is the Type GRD, Model 100.

This Dempster-Diggster, shown at work in Creighton, Pa., is also loading hard and stratified material without shooting. It is the Type CR, Model 100.

The Type GRD, Model 100-HL is shown above loading Hopper Bottom car, height of which is 10'8" from rail to top of car.

Simultaneous Independent Hydraulic Crowding and Hoisting, Variable Crowd Action at Any Dipper Position and Changeable Buckets are engineered into the Dempster-Diggster. Many of the present Dempster-Diggster owners were at one time in the same position you may be in today. They needed front end loaders, but they also needed shovels that could dig out 15 to 18 foot banks. The versatility of the Dempster-Diggster, plus its economical and efficient operation, left them with only one choice. In the first place, the Dempster-Diggster can do anything a conventional front end loader can do—and do it faster and at less cost! Second, on big jobs the Dempster-Diggster is without equal for working in tight places. The Dempster-Diggster is available in either of two types of traction—pneumatic (Type GRD) or crawler (Type CR). Both types are supplied in two models—the Standard (Model 100) or High Lift (Model 100-HL). Our new catalog No. 1032, with over 35 illustrations and complete specifications, shows how this revolutionary shovel can cut your costs tremendously. For your copy fill in the attached coupon and mail today!

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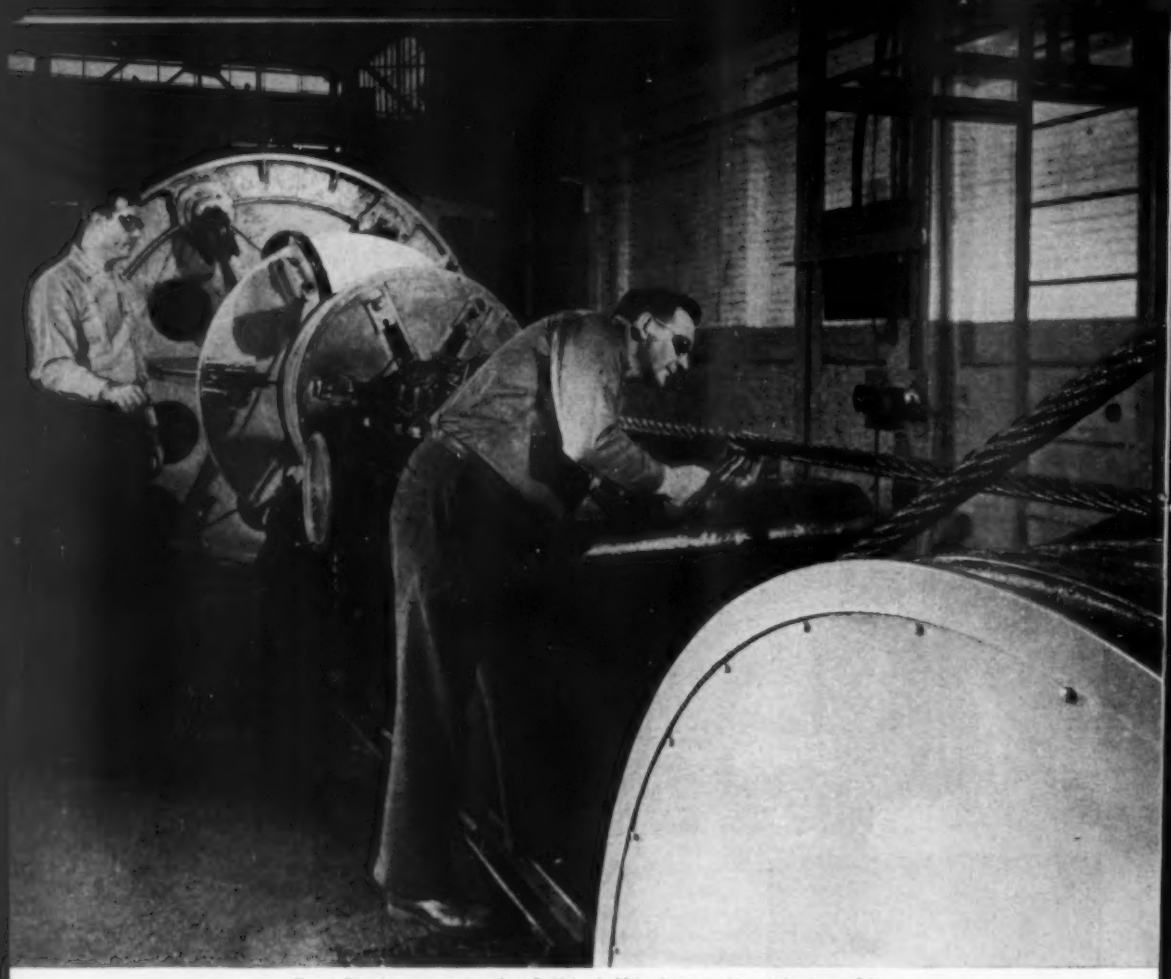

Here a big wire rope emerges from Bethlehem's 66-in. closing machine. At this stage of the checking, the inspector is making sure that the diameter is within specified tolerances.

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Saying "no" can be part of the Bethlehem rope inspector's job. Fortunately, he seldom has to use the veto power, for Bethlehem rope is made with such care that rejects are few. But the inspector won't hesitate to stop a rope if even a minor detail is subject to question.

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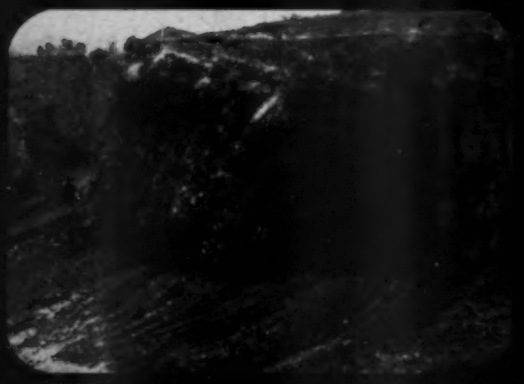
# Here's how ROCKMASTER® blasting increases explosives efficiency



You can see ROCKMASTER efficiency in these pictures, taken at the height of four different ROCKMASTER blasts. There is no flying rock, no geysering of explosive force. ROCKMASTER keeps the power of the blast confined, using all the explosives energy to produce maximum breakage with maximum efficiency.

When the blast is initiated at the point of maximum confinement, the explosive force follows the line of least resistance . . . directly into the burden. With ROCKMASTER millisecond blasting, the first initiation places the burden under maximum stress, producing lines of weakness throughout the burden. A split-second later, the next charge hits the stressed material with a shattering force that produces maximum breakage . . . maximum use of the explosive force. It is the "one-two punch" applied to blasting.

Ask your Atlas technical representative to show you the picture presentation of the ROCKMASTER story. See for yourself how the millisecond delay electric blasting caps teamed with the ROCKMASTER system of explosives choice can give you greater blasting efficiency through complete confinement of the blast.

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**PRECISION SPACE SCREENS**
PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
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# P&H Diesel Engines

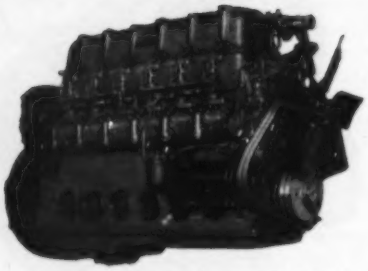
(2-CYCLE)

## *Can your diesels match this torque curve?*

This is the torque curve for the P&H Model 687-C Diesel Engine. Note how the torque characteristics are sustained throughout its entire horsepower range.

That means steady, responsive power at all speeds — greater lugging "ability" for those toughest jobs. It's the kind of unfaltering performance that assures more profits in any service, constant or intermittent.

Steady torque for steady work is just another outstanding feature of P&H Diesel Engines — America's most advanced line. Ask your P&H Diesel representative for the full story. Or write for literature.



P&H Diesel Engines are built in 1, 2, 3, 4 and 6-cylinder models — up to 145 h.p.

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*the* P&H *line*

# 20 Tons Per Hour of Fine Sand Recovered

## In One 24" Dia. DORRCLONE*!

**Here are some operating results that prove how this installation is paying off in terms of increased sand production:**

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|---|---|
| Equipment | One 24" dia. DorrClone |
| Feed | 980 GPM |
| Solids in feed | 11% |
| Underflow | 61 GPM |
| Solids in underflow | 73% |
| Underflow tonnage | 20 TPH (dry basis) |
| Overflow | 919 GPM |
| Solids in overflow | 4% (approx.) |
| Recovery | 71% |

At Pequannock Sand & Gravel Company, Pequannock, N. J., this 24" dia. DorrClone is recovering 71% of the solids overflowing the sand wheel at the left . . . an average 20 TPH of sand that would otherwise be lost. Underflow is carried by belt conveyor to stockpile for use as mason sand or for blending.

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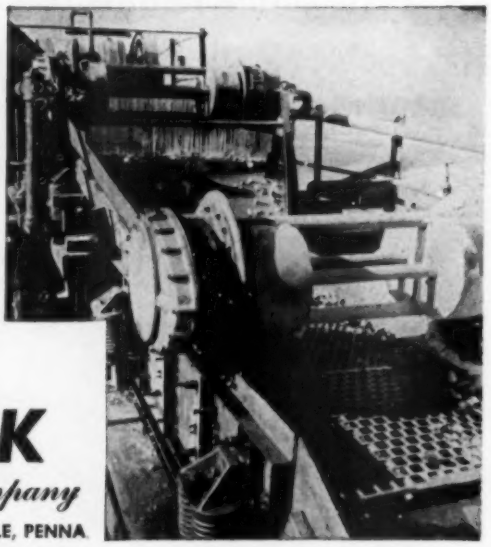

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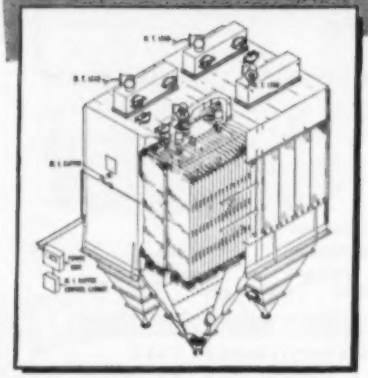

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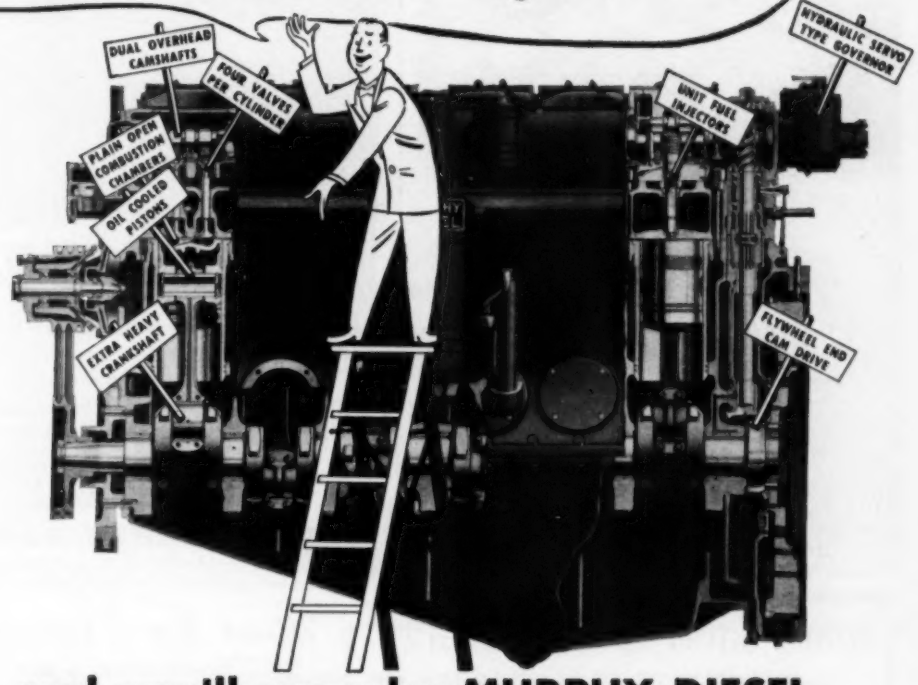


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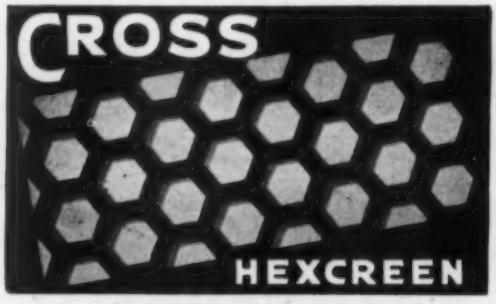


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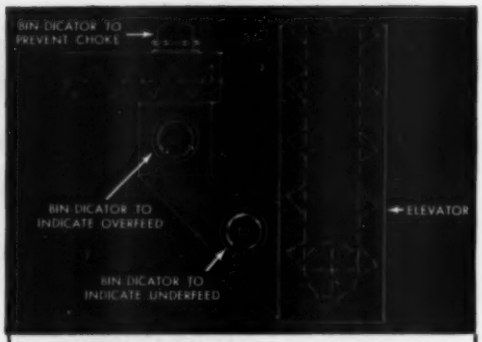


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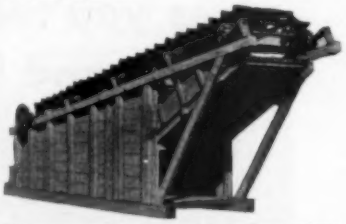

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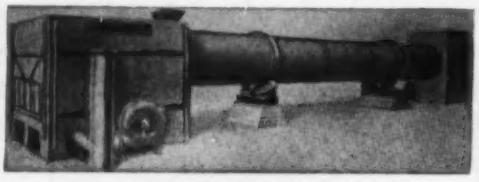

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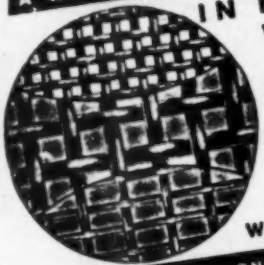

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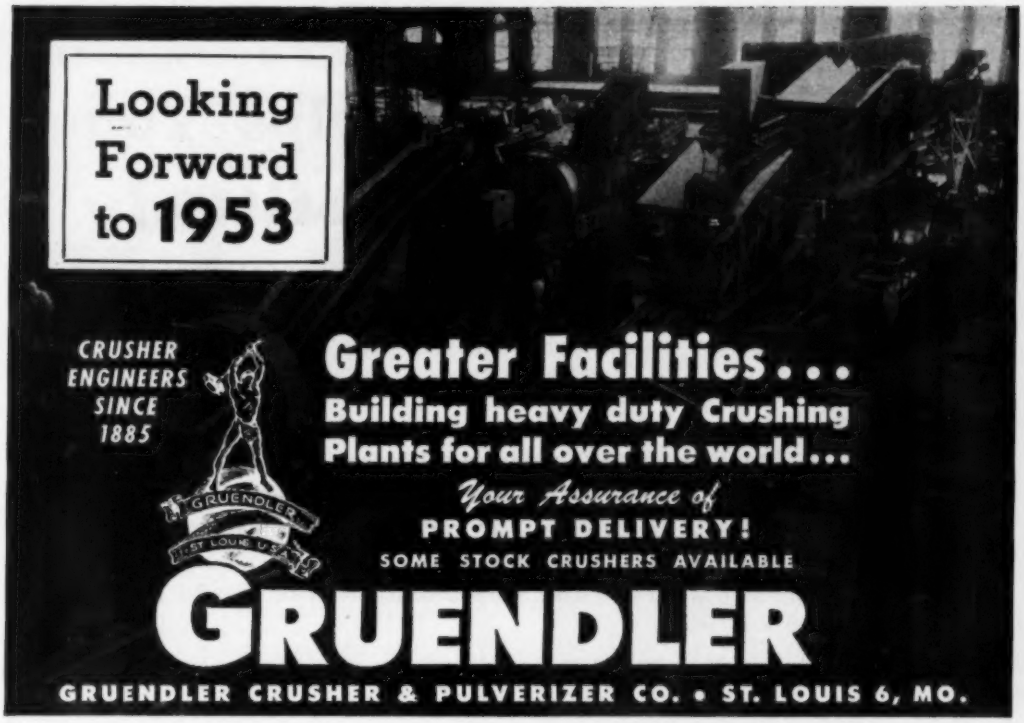

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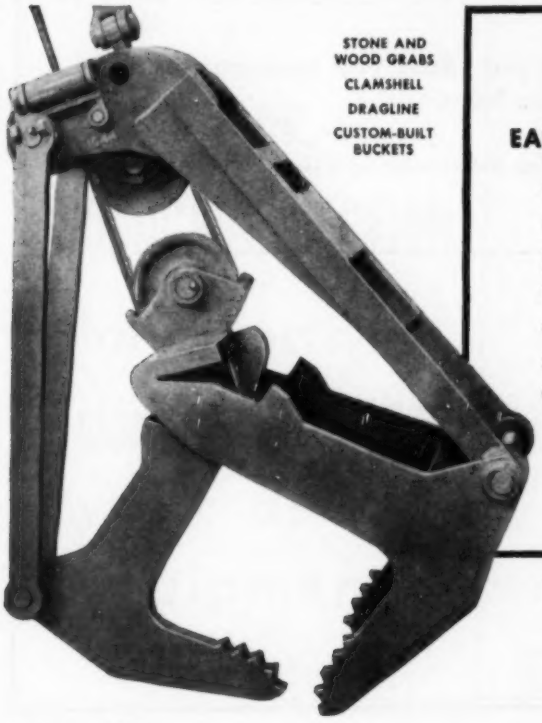

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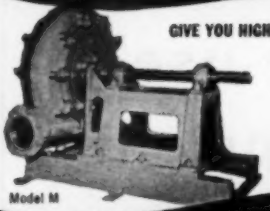

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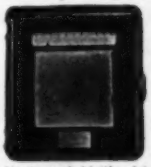

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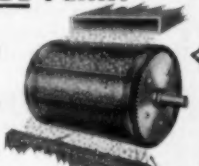

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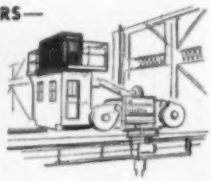

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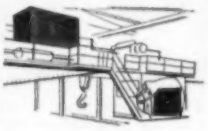

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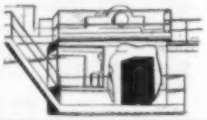

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**WANTED**

Man with experience in installation of Sand, Gravel and Crushed Stone plants. Work in New England area. Please give full particulars in first letter.

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**WANTED**

6—36" Gauge, All Steel, 4 to 5 cu. yd., Side Dump, Quarry Cars. Easton-Phoenix, or Lakewood preferred.

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To Expedite Production—Rock Products Equipment including Rotary Dryers, Kilns, Crushers, Bins, Ball Mills, Vibrating Screens, Filters, Power Shovels & Cranes, Conveyors, Diesel Engines. Will consider a set up plant now operating or shut down. When offering give full particulars.

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**75 KW DIESEL AC GENERATOR**

1—75 KW Diesel Generator, 220/440/60/3, power Cat. D-13000 Diesel eng., complete with electric starting & control panels. LATE MODEL, OFFERED REBUILT. A REAL BUY. At our Chicago Plant.

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PIONEER 30" x 42" r.b. Jaw Portable Primary Plant. Mdl. 56-A, w/ 42" x 14' grizzly apron feeder, hopper, by-pass chute, mounted Athey crawler tracks 95% new. $15,500.00 or $18,500.00 with Cummins Diesel HRP600. Bargain.

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WILLIAMS $40 "Slugger." Universal $3, 4.

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Please send complete resume with first letter and approximate salary expected.

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SWING HAMMER MILLS.
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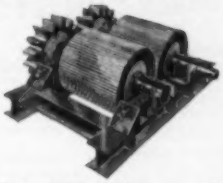

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|---|---|---|---|---|
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| 10" | 4 | 1/16" | 1/32" | 28 Oz. |
| 12" | 4 | 1/16" | 1/32" | 28 Oz. |
| 14" | 4 | 1/16" | 1/32" | 28 Oz. |
| 16" | 4 | 1/8" | 1/32" | 28 Oz. |
| 18" | 4 | 1/8" | 1/32" | 28 Oz. |
| 20" | 4 | 1/8" | 1/32" | 28 Oz. |
| 20" | 5 | 1/8" | 1/32" | 28 Oz. |
| 24" | 4 | 1/8" | 1/32" | 28 Oz. |
| 24" | 5 | 1/8" | 1/32" | 28 Oz. |
| 24" | 5 | 1/8" | 1/32" | 28 Oz. |
| 30" | 4 | 1/8" | 1/16" | 32 Oz. |
| 30" | 5 | 1/8" | 1/16" | 32 Oz. |
| 30" | 6 | 1/8" | 1/16" | 32 Oz. |
| 36" | 6 | 1/8" | 1/16" | 32 Oz. |
| 42" | 5 | 1/8" | 1/16" | 32 Oz. |
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3—6′ x 60′ Bonnot Co., complete, ½″ shells, each with or without 3′ x 50′ Rotary Cooler. By installing lifting flights these kilns would make excellent heavy duty dryers.
1—7′ x 45′ Link Belt Kiln, complete.
1—4′6″ x 35′ Ruggles-Coles Kiln.

**ROTARY DRYERS:**

1—8′ x 54′ Struthers-Wells, Timken roller bearing supports, gear reducer, 40 H.P. motor, furnace, burner, etc.
8—6′ x 42′, 5′ x 40′ Ruggles-Coles; 54″ x 25′ Class XF-4 Ruggles-Coles, also Link-Belt 2′7″ x 10′; 6′4″ x 24′ Roto-Louvre. 3—3′ x 50′, 5 x 50′, 6x60′, 7x70′ Direct Heat. Also 3—6′ x 50′ Louisville Rotary Steam Tube.

**CRUSHERS:**

Jaw—2″ x 6″, 6″ x 15″ Sturtevant; 18 x 36″ and 24 x 36″ Farrel; 42 x 48″ Traylor; Rolls: 42″ x 16″ Allis-Chalmers Type B; 24 x 32″ Penna. single roll.
Portable Plants—Cedar Rapids 1036-BBB; 2540-AAAA, 2036-AAA, also Pioneer with 30 x 42″ primary and secondary crushers, all Diesel driven.

**PULVERIZERS:**

1—5 roll Raymond High Side.
6—#21, #0, #00, #000 Raymond Mills.
3—#20, #00, 8″ Raymond Screen Mills.
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2—Mikro #2TH, #4TH.

**BALL AND TUBE MILLS:**

1—4′6″ x 7′ Allis-Chalmers Ball Granulator, iron lined, used 100 hours.
6—Hardinge Mills, 3′ x 8″, 5′ x 22″, 6′ x 22″, 8′ x 48″.
4—Tube Grinding Mills, made by Traylor E. & M. Co. Allentown, Pa. Silex lined, 4′ x 12′, 4′6″ x 18′6″, 5′ x 22′ and 5′ x 20′. Also 2—5′6″ x 20′ iron lined, with motors.
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2—Raymond 6′ and 16′ dia., 1—8′ Gayco; 1—16′ Sturtevant.

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30 Ft.—6'0" Dia. 1/2" Plate
**28 SURPLUS**

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60 INCH 1—60'—2—100'—1—160'
36 INCH 1—160'—2—250'—1—320'—1—400'—1—590'—2—1000' & 1—1600' Long.
42 INCH 1—144'—1—290'—1—377'—1—575'—2—700'—1—800'—2—1500' Long.
**10 SURPLUS NEW**

**MERRICK WEIGHTOMETERS**
1 for 24 In. 8 for 30 or 36 In.
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4—100 TON G.E. DIESEL ELEC. STD. GA.
6 TON BROOKVILLE 36 GA. DIESEL.
4 TON BROOKVILLE 36 GA. GAS.

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**Marion, Ohio, U. S. A.**

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**★See also Detailed Information in 1952 Pit and Quarry HANDBOOK**

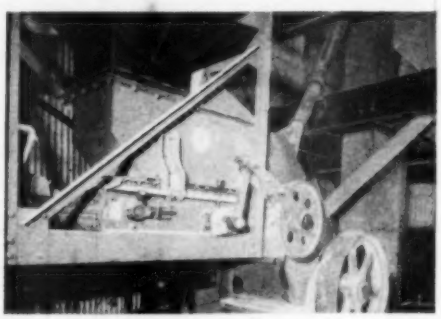
# It pays to choose a feeder that fits your operating requirements

## FOR HEAVY IMPACT SERVICE

Where material consisting of heavy, sharp or abrasive large lumps must be handled, Link-Belt Heavy Duty Apron Feeders are the answer. Severe service—including high temperature and heavy impact—causes no trouble for these rugged feeders. Four designs meet varying operating needs. Widths from 18 to 60 in.

## FOR ACCURATE FEEDING

The Link-Belt Apron Feeder at right provides a uniform flow for smaller tonnages. Relatively short pitch chains and apron pans are employed. The drive is arranged to provide easy adjustment of feed to the crusher, permitting great flexibility to meet varying operating conditions.



## FOR SMOOTH, UNIFORM FLOW

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## LINK-BELT makes a complete feeder line . . . offers the right one for your requirements

In addition to the types above, Link-Belt builds bar flight, screw, oscillating, rotary table, rotary vane and reciprocating feeders. But Link-Belt offers more than a complete quality line to help you get the most efficient application. Link-Belt engineers base their recommendations upon a working knowledge gained in hundreds of plants over many years. Not only for feeding — for conveying, washing, classifying and screening as well — you can rely on Link-Belt all the way.

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12,505

As the white outline indicates, a standard unit of much greater frame size would be required to do the work of Speedaire. The unit operates a Ruggles-Coles Dryer, built by the Hardinge Co., Inc., York, Pa.

# SPEEDAIRE ... for 3 years 24 hours a day

THREE years ago, a South Carolina kaolin plant installed one of Cleveland's new fan-cooled Speedaire worm gear speed reducers to drive a rotary kiln. It has operated almost continuously, day and night, ever since, with unimpaired efficiency in spite of the heat and dust.

As the photograph indicates, a limited area was available to install a speed reducer, but it was entirely adequate for Speedaire, because it occupies 42% less space than a conventional worm gear drive of comparable capacity. Speedaire also saved $128.50 on initial cost.

Because Speedaire is fan-cooled, it will do more work—will deliver up to *double the horsepower* of standard worm units of equal frame size, at usual motor speeds. It can be installed economically on many applications where other types have been used heretofore—giving you the advantage of a compact right-angle drive. Speedaire gives the same long, trouble-free service characteristic of all Clevelands.

For full description, send for Catalog 300. The Cleveland Worm & Gear Co., 3280 East 80th St., Cleveland 4, Ohio.

*Affiliate: The Farval Corporation, Centralized Systems of Lubrication.*
*In Canada: Peacock Brothers, Limited.*

**CLEVELAND**
Worm Gear
*Speed Reducers*

# 252 tons per hour

## on 35-mile round trip haul averaged by 12 MACK TRUCKS

One of 12 Macks equipped with "drop bottom" semi-trailers, operated by Morrison-Knudsen Company, shown loading up at the phosphate mine.

● Here's a hauling operation that points up the ability of Mack trucks to keep the big loads moving on fast, profit-making schedules.

It's the story of 12 Mack Model LHSW diesel-powered six-wheelers operated by Morrison-Knudsen Company and used to transport phosphate ore a distance of 17½ miles from the mines to the Monsanto Chemical plant in Soda Springs, Idaho. Working in rugged, rolling mountain country—with an altitude difference of 900 feet between the two points—each of these Macks loads out with 21 tons of ore and averages a little less than one hour for the 35-mile round trip.

All together the twelve Macks keep 252 tons flowing hourly into the Monsanto plant—dependable, unfailing performance that has confirmed the wisdom of Morrison-Knudsen in selecting Mack trucks.

It will pay you, too, to see your nearest Mack branch or distributor and find out what it means to have sturdy Mack trucks shouldering your loads—with greater profit to you.

En route between the mine and chemical plant, the trucks roll along against a background of rugged, mountain country.

Mack TRUCKS

*...outlast them all*

Mack Trucks, Empire State Building, New York 1, N. Y. Factory branches and distributors in all principal cities for service and parts. In Canada: Mack Trucks of Canada, Ltd.